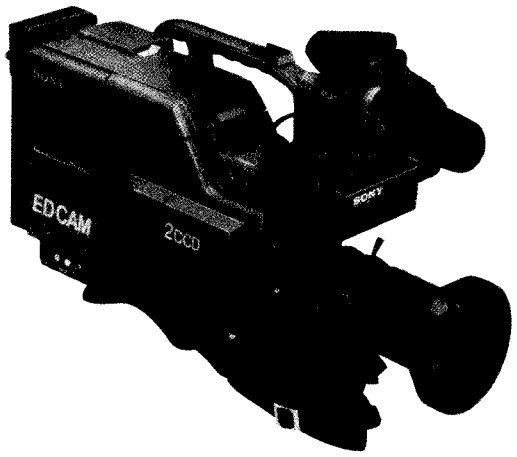
EDC-55

SERVICE MANUAL

US Model
Canadian Model



EDCAM

SPECIFICATIONS

Camera (CCD-55)

Image device	Interline transfer CCD, 2-chip CCD
Picture elements	420,000 total picture elements 380,000 effective picture elements
Minimum illumination	25 lux

Lens (VCL-1010BY)

Focal length	10.5 - 105 mm (7/16 - 4 1/4 inches)
Zoom	Manual and motorized, selectable Zooming ratio: 10 x
Maximum aperture ratio	1.6 (telephoto 1.8)
Iris	Manual and auto, selectable 1.6 to 22 and C
Range of object field (at distance of 1.1 m or 43 1/2 inches)	W (wide angle): 625 × 827 mm (24 5/8 × 32 5/8 inches) T (telephoto): 64 × 84 mm (2 5/8 × 3 3/8 inches) When monitor underscan is 0%
Focus range	∞ - 1.1 m (43 1/2 inches)
Lens hood attachment screw	ø67 mm (2 3/4 inches)
Filter attachment screw (inside the lens hood)	ø72 mm (2 7/8 inches)
Mount	Bayonet mount
Weight	Approx. 1.1 kg (2 lbs. 7 oz.) with lens hood
Dimensions	Approx. 101 × 178 mm (diameter/length) (4 × 7 1/8 inches)

Electronic viewfinder (DXF-C50)

Picture tube	1.5-inch monochrome
Resolution	400 lines
Power requirements	12 V DC
Weight	Approx. 600 g (1 lb. 5 oz.)
Dimensions	Approx. 201 × 68 × 186 mm (w/h/d) (8 × 2 3/4 × 7 3/8 inches)

VCR (EDV-55)

Video recording system	Rotary two heads, Helical scanning FM system (stereo)
Audio recording system	Beta hi-fi audio (stereo) Conventional audio (monaural)
Video signal	NTSC color, EIA standards
Usable cassette	Cassette with ED Beta mark
Tape speed	ßII : 2.00 cm/sec ßIII : 1.33 cm/sec
Max. recording/playback time	ßII : 2 hours ßIII : 3 hours (with EL-500 video cassette)
Fast forward/rewind time	Approx. 3 min. 30 sec. (with EL-500 video cassette)

– Continued on next page –

MICROFILM

ED Beta VIDEO CAMERA RECORDER

SONY®

Audio frequency	20 Hz – 20 kHz (Beta hi-fi sound)
Wow and flutter	Less than 0.005% (Beta hi-fi sound)
Dynamic range	80 dB (Beta hi-fi sound)
Input and output	VIDEO OUTPUT jack (phono jack) 1.0 Vp-p, 75 ohms, unbalanced, sync negative S VIDEO OUTPUT jack (4-pin mini DIN) Y: 1.0 Vp-p, 75 ohms, unbalanced, sync negative C: burst level 0.286 Vp-p, 75 ohms, unbalanced AUDIO OUTPUT L, R jacks (phono jacks) −10 dBs (output impedance 47 kilohms) PHONES jack (stereo mini jack) CONTROL L jack (5-pin) MIC connector (6-pin) MIC L, R jacks (phone jacks) EXT DC IN 12 V jack

Power source and others

Power requirements
DC 12 V

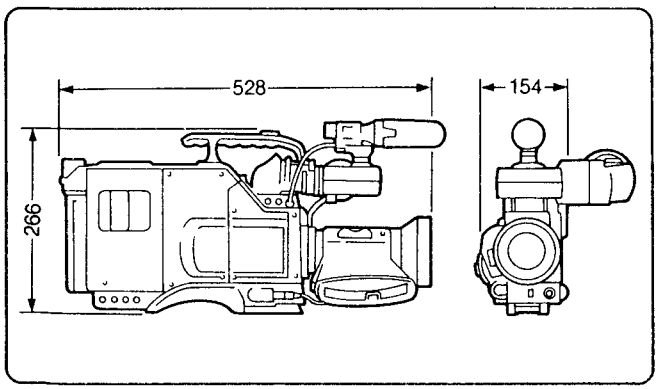
Power consumption
23 W

Operating temperature
0°C to 40°C (32°F to 104°F)

Storage temperature
−20°C to +60°C (−4°F to +140°F)

Weight
Approx. 6.9 kg (15 lbs. 3 oz.)
including lens but excluding battery pack NP-1H

Dimensions (unit: mm)



SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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The color reproduction standard frame is contained after the adjustment elements location of camera adjustment parts.

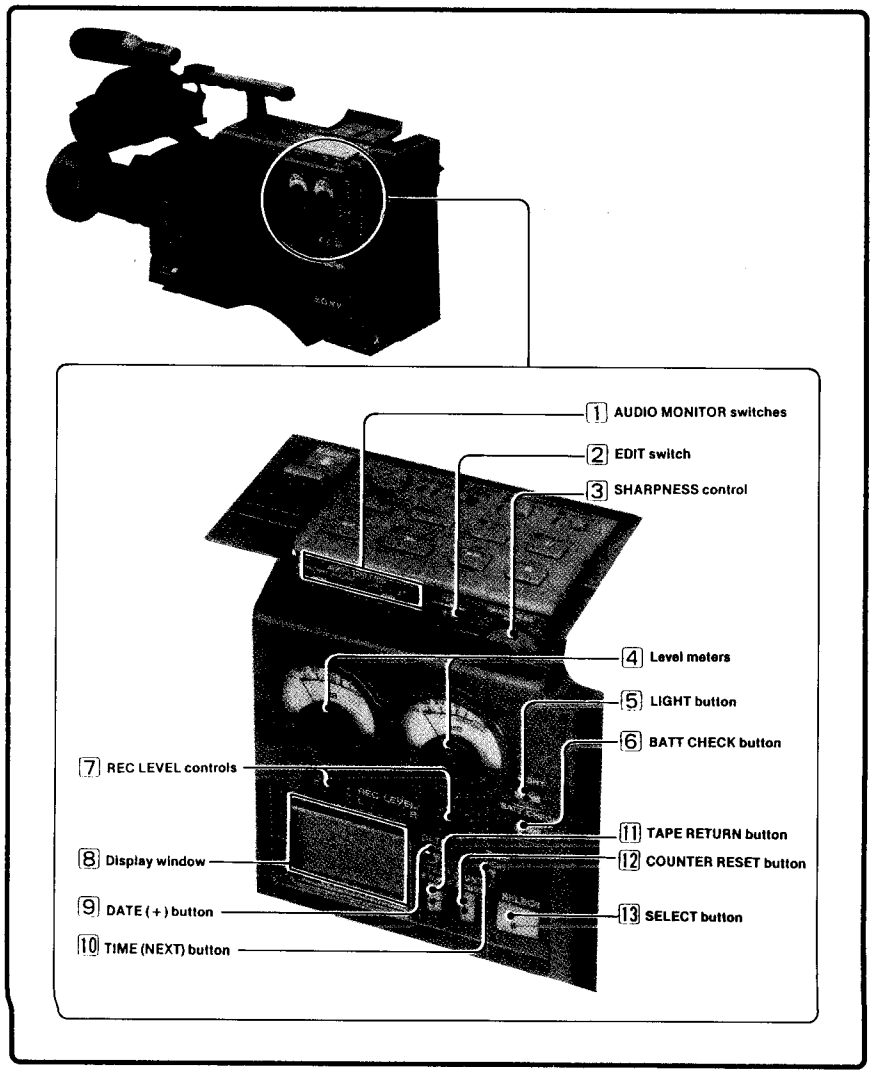
SECTION 1
GENERAL

This section is extracted from instruction manual.

Location and Function of Parts and Controls

For details, refer to the pages indicated next to each item.

VCR



1 AUDIO MONITOR switches
Used to select the output of audio signals from either AUDIO OUTPUT or PHONES.

HI-FI	Beta hi-fi sound
MIX	Mixed sound between Beta hi-fi and monaural.
NORM (normal)	Monaural

Beta hi-fi sound in HI-FI and MIX	
L/R	Stereo
L	Left channel only (monaural)
R	Right channel only (monaural)

Note

When playing back a tape on which the same sound content is recorded on both Beta hi-fi and conventional monaural tracks, the sound may be distorted if the AUDIO MONITOR switch is set to MIX. This is due to a difference in the volume of wow and flutter between Beta hi-fi and monaural and is not indicative of a malfunction.

2 EDIT switch ⓯
When editing a tape with another VCR, set the EDIT switch in the direction of the arrow.

3 SHARPNESS control
Used to adjust the sharpness of the playback scene on the screen.

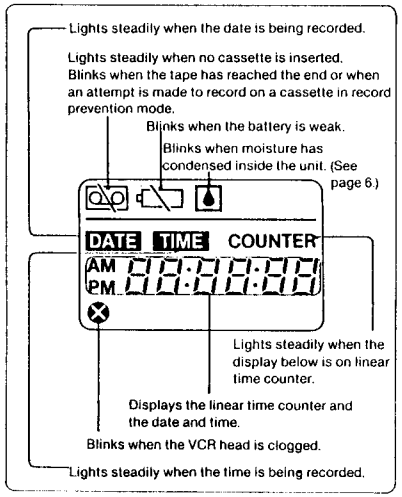
4 Level meter (L, R)
Indicate the sound levels of the Beta hi-fi L and R channels. The battery level is indicated on the R meter if BATT CHECK button 6 is pressed.

5 LIGHT button
The level meter and display window light up when this button is pressed.

6 BATT (battery) CHECK button
Press this button to display the battery level in the R level meter. Change the battery when the needle is no longer in the green area.

7 REC LEVEL controls ⓰
Use these controls to adjust the recording level of R and L channels of Beta hi-fi sound.

8 Display window


Lights steadily when the date is being recorded.
Lights steadily when no cassette is inserted. Blinks when the tape has reached the end or when an attempt is made to record on a cassette in record prevention mode.
Blinks when the battery is weak.
Blinks when moisture has condensed inside the unit. (See page 6.)
DATE
TIME
COUNTER
AM
PM
Lights steadily when the display below is on linear time counter.
Displays the linear time counter and the date and time.
Blinks when the VCR head is clogged.
Lights steadily when the time is being recorded.

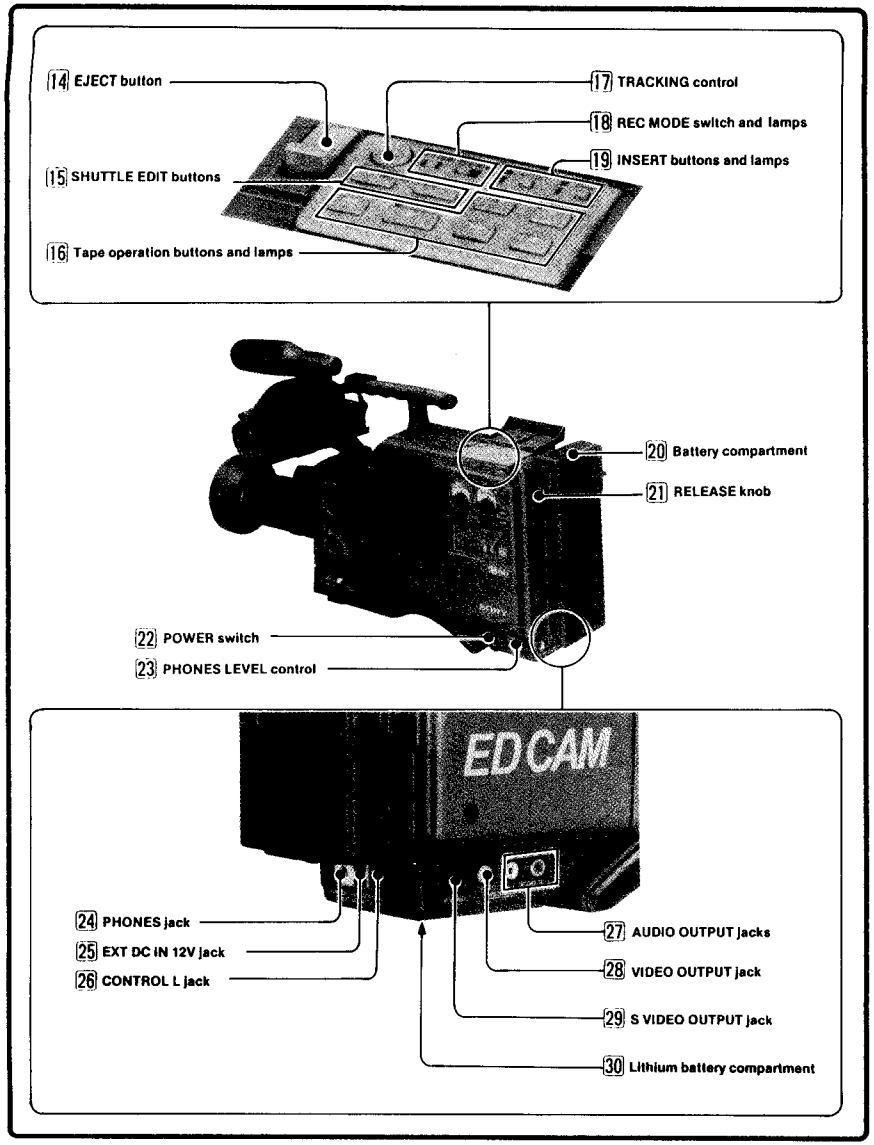
9 DATE (+) button ⓯ ⓱

10 TIME (NEXT) button ⓯ ⓱
Use these two buttons to set the date and time. After setting, press the DATE (+) button to record the date and press the TIME (NEXT) button to record the time.

11 TAPE RETURN button ⓯
Press this button when the tape is in stop mode to rewind or fast forward the tape to the last reset point.

12 COUNTER RESET button
Press this to reset the linear time counter to zero.

13 SELECT button
Press this button to alternately display the date, time and linear time counter in the display window.


14 EJECT button
17 TRACKING control
18 REC MODE switch and lamps
19 INSERT buttons and lamps
15 SHUTTLE EDIT buttons
16 Tape operation buttons and lamps
20 Battery compartment
21 RELEASE knob
22 POWER switch
23 PHONES LEVEL control
ED CAM
24 PHONES jack
25 EXT DC IN 12V jack
26 CONTROL L jack
27 AUDIO OUTPUT jacks
28 VIDEO OUTPUT jack
29 S VIDEO OUTPUT jack
30 Lithium battery compartment

14 EJECT button
Press this button in the direction of the arrow to open the cassette holder. This button does not function if a cassette is in the holder and the CAMERA/VTR switch on the camera is set to CAMERA ON • VTR STBY.

15 SHUTTLE EDIT buttons (+, −) 47
Used to find the start and end points of the edit. When the unit is in the recording/playback pause mode, keep + depressed to play back the tape in the same direction and keep − depressed to play back in the opposite direction. (See page 47 for details on single unit insert editing.)

16 Tape operation buttons and lamps 43 45
- ► PLAY button and lamp
- ►► FF (fast forward) button
- ◄◄ REW (rewind) button
- ■ STOP button
- ❚❚ PAUSE button and lamp
- ● REC (recording) button and lamp (This button functions only when the VCR section is used separately from the camera section. When this button is pressed, the VCR enters the recording pause mode.)

17 TRACKING control 45
Used to adjust the tracking when playing a tape recorded on another ED Beta video cassette recorder.

18 REC MODE switch and lamps
Used to select the recording mode. The lamp on the mode selected lights up. When playing back the tape, the unit automatically selects the same mode and the lamp on that mode lights up.

19 INSERT buttons and lamps 47
The lamp lights up when this button is pressed in playback pause mode. Select an edit channel when performing insert editing.

Only AUDIO lights up	When inserting monaural sound to the conventional audio track (audio dubbing).
Only VIDEO lights up	When inserting picture and Beta hi-fi sound to the video track.
Both VIDEO and AUDIO light up	When inserting picture, Beta hi-fi sound and monaural sound.

Press the button again to turn off the lamp.

20 Battery compartment 28
Used to store the supplied NP-1H battery pack or the ACP-1H AC pack.

21 RELEASE knob
Turn this knob slightly to the left to open the battery compartment. Turn the knob further to release the battery.

22 POWER switch
This is the main power switch used to turn the power on and off.

23 PHONES (headphones) LEVEL control
Used to adjust the level of sound output from PHONES jack 24.

24 PHONES (headphones) jack (stereo mini jack)
Connect optional headphones to this jack.

25 EXT (external) DC IN 12 jack 28
Used to supply power to this unit from the NP-4000 battery pack.

26 CONTROL L jack 48 49
When using another Sony VCR for editing, connect this to either the CONTROL L jack of the other VCR or to the CONTROL L cord of the RM-E100V video editing controller.

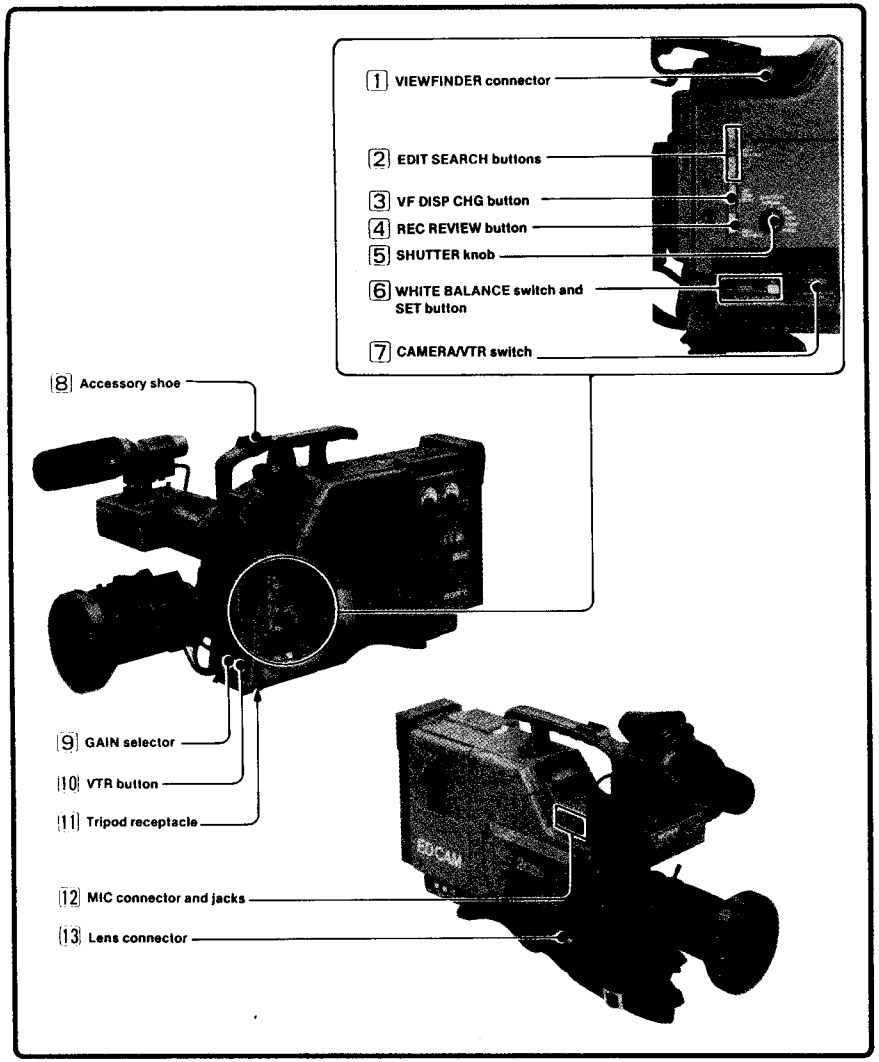
27 AUDIO OUTPUT jacks (L, R) (phono jacks)

28 VIDEO OUTPUT jack (phono jack)

29 S VIDEO OUTPUT jack (4-pin mini DIN)

30 Lithium battery compartment 28
Used to store the supplied lithium battery.

Camera



1 VIEWFINDER connector (8-pin)
Connect the viewfinder cable to this connector.

2 EDIT SEARCH buttons (+, –) ⑫
When in recording pause mode, keep + depressed to play back in the same direction and keep – depressed to play back in the opposition direction. Use this button for the index when starting to record partway through a segment already recorded.

3 VF DISP CHG (Viewfinder Display Change) button ⑮
The display on the viewfinder changes each time this button is pressed.

4 REC REVIEW button ⑰
When in recording pause mode, press this button to play back the last few seconds of recorded tape. The tape remains in recording pause mode when it reaches the point where the button was pressed.

5 SHUTTER knob ⑯
Selects the shutter speed of the electronic shutter. The electronic shutter does not operate when the SHUTTER knob is set to NORMAL.

6 WHITE BALANCE switch and SET button ⑱

5600K	Set to this position if there is no time to set the white balance when shooting outside. This has the same effect as if the white balance was adjusted under a color temperature of 5600K.
3200K	Set to this position if there is no time to set the white balance when shooting indoors. This has the same effect as if the white balance was switched on under a color temperature of 3200K.
AUTO	Set to this position to adjust the white balance using the SET button. The adjusted value will remain in the memory until reset.

7 CAMERA/VTR switch ⑭

CAMERA OFF • VTR SAVE	Turns power to the camera off. The tape play button on the VCR functions.
CAMERA ON • VTR SAVE	Turns power to the camera and the VCR on. The VCR repeats a sequence of record and stop each time the VCR button on the camera or the lens is pressed. It takes about three seconds for recording to resume after switching from the stop mode to the recording mode.
CAMERA ON • VTR STBY (standby)	Turns power to the camera and the VCR on. The VCR repeats a sequence of record and recording pause modes each time the VCR button on the camera or the lens is pressed. Recording resumes immediately after switching from the recording pause mode.

8 Accessory shoe ⑬
Use this to attach accessories, such as lights. Lights should be attached to the supplied light arm.

9 GAIN selector ⑲
Used to select the gain of the video amplifier according to the brightness of the object.

0 dB	Normally set to the 0 position. (gain: 0 dB)
9 dB	The gain will be increased by 9 dB.
18 dB	The gain will be increased by 18 dB.

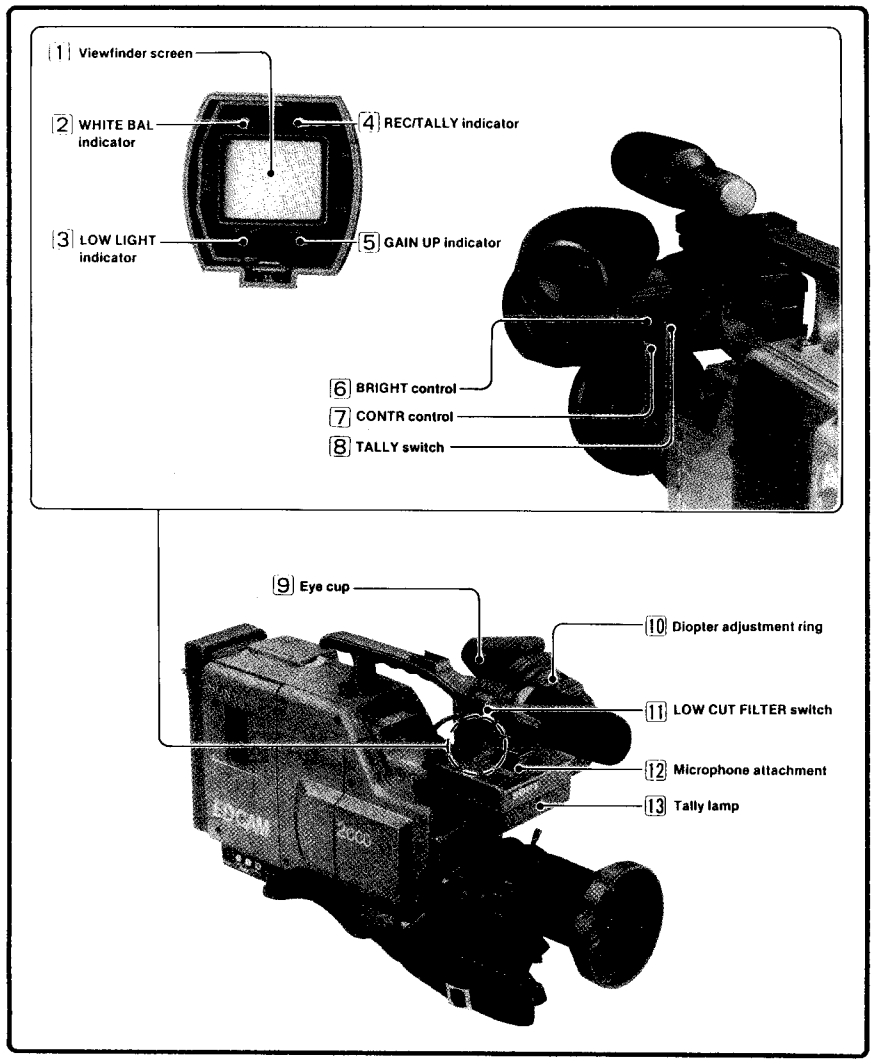
10 VTR button
The unit alternately enters the record and recording pause (or stop) modes each time this button is pressed.

11 Tripod receptacle ㉑
Use this to attach the tripod to the camera when not using a tripod attachment (VCT-C50, optional).

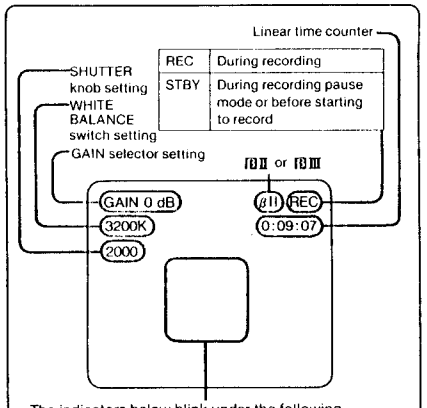
12 MIC connector and jacks (6-pin connector and phone jacks)
Connect the supplied microphone to the 6-pin connector. If using a microphone other than the supplied one, connect it to the L, R jacks.

13 Lens connector (6-pin)
Connect the lens cable to this connector.

1.5-inch Electronic Viewfinder



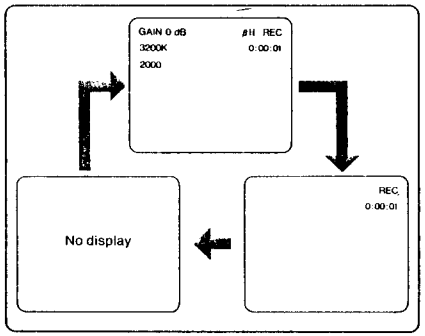
[1] Viewfinder screen



The indicators below blink under the following conditions.

TAPE END	The tape has reached the end.
CASSETTE	• The inserted cassette is in record prevention mode. (See page 28.) • A cassette without the ED Beta has been inserted.
BATTERY	The battery is weak.
CAUTION	The unit is malfunctioning or trouble occurred.
DEW	Moisture has condensed inside the VCR.

The display changes as follows each time the camera VF DISP CHG button is pressed.



[2] WHITE BAL indicator (red)

Fast blinks	The white balance is being adjusted.
Slow blinks	The white balance has not been adjusted.

[3] LOW LIGHT indicator (red)

Blinks	The light is insufficient.

[4] REC/TALLY indicator (red)

Lights up	Recording
Slow blinks	The battery is weak. (This blinks at the same time as the warning indicator display on the viewfinder lights up.)
Fast blinks	The battery is weak or the VCR has been switched from stop to record.

[5] GAIN UP indicator (orange)

Lights up	The GAIN selector has been set to 9 dB or 18 dB.

[6] BRIGHT (brightness) control

Used to adjust the brightness of the picture on the viewfinder. This control does not affect the recording.

[7] CONTR (contrast) control

Used to adjust the contrast of the picture in the viewfinder. This control does not affect the recording.

[8] TALLY switch

ON	Tally lamp [13] is activated.
OFF	Tally lamp [13] is not activated.

[9] Eye cup

This can be flicked up when viewing.

[10] Diopter adjustment ring ⑫

Adjust this to achieve the best focus on the viewfinder screen.

[11] LOW CUT FILTER switch ⑩

Switch to ON to eliminate wind noise, etc.

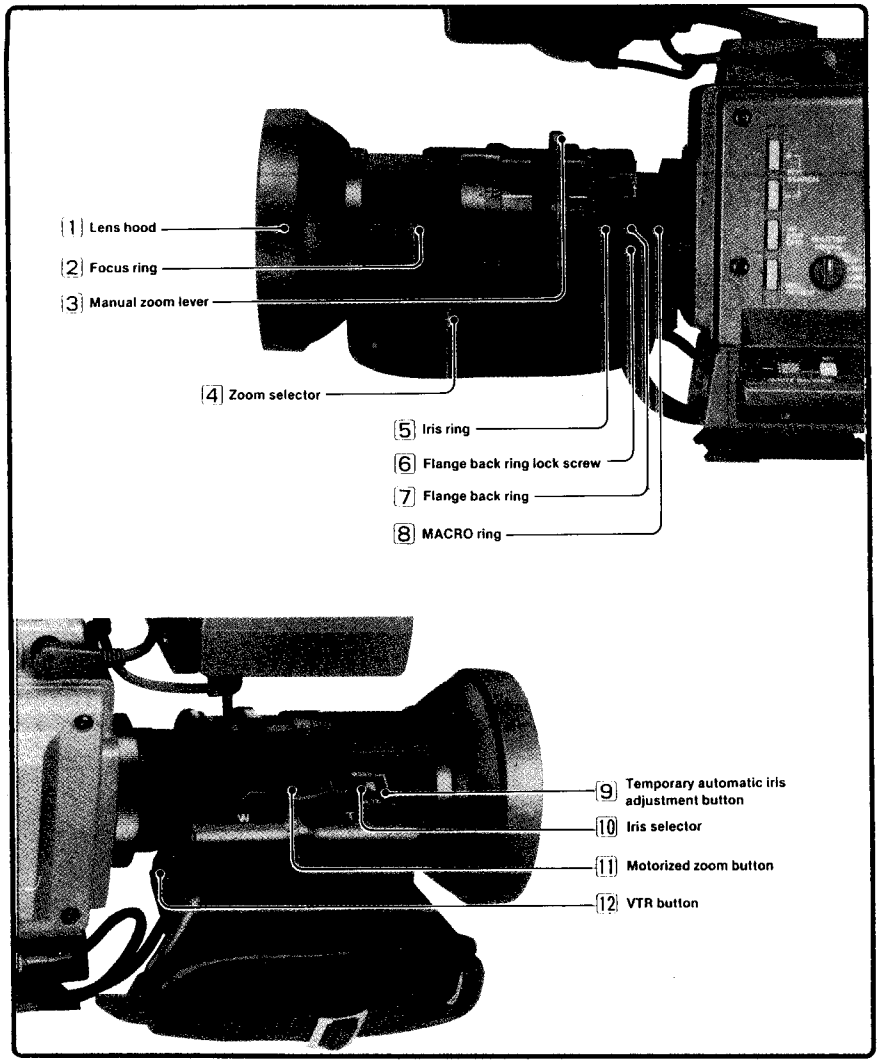
[12] Microphone attachment ⑳

Used to attach the supplied microphone.

[13] Tally lamp (red)

This lamp lights up or blinks the same as the REC/TALLY indicator [4].

10 x Variable Speed Motorized Zoom Lens



[1] Lens hood
Turn to the left to remove.

[2] Focus ring
Turn the ring until a clear picture is obtained.

[3] Manual zoom lever ⓭
Used for manual zooming. Turn this lever with the zoom selector [4] set to MAN position.

[4] Zoom selector ⓮

SER (servo)	Set to this position for motorized zooming.
MAN (manual)	Set to this position for manual zooming.

[5] Iris ring ⓯
Used for manual iris adjustment. Turn this ring with iris selector [10] set to MANU position.

[6] Flange back ring lock screw ⓫
Used to lock the flange back ring [7] in the adjusted position.

[7] Flange back ring ⓫
Turn this ring to adjust the flange back.

[8] MACRO ring ⓰
Used for close-ups. Turn the ring in the direction of the arrow.

[9] Temporary automatic iris adjustment button ⓱
Used to adjust the iris automatically when the iris selector is set to the MANU position. Press the button to adjust the iris automatically and release it to adjust the iris manually.

[10] Iris selector ⓲

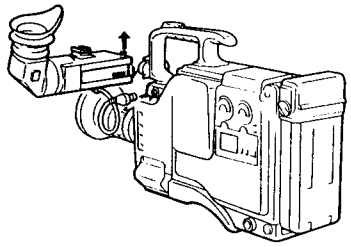
AUTO	For automatic iris adjustment.
MANU (manual)	For manual iris adjustment.

[11] Motorized zoom button ⓳
Used for motorized zooming when the zoom selector [4] is set to the SER position. Press the W side for a wide-angle picture and the T side for a telephoto picture. Zooming is faster when the button is pressed down all the way and slower when it is pressed down only slightly.

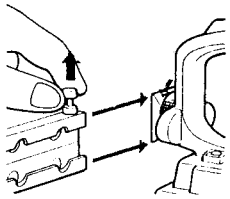
[12] VTR button
Press this button to start recording and press it again to pause or stop recording.

Attaching Accessories

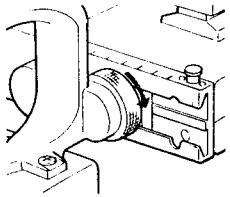
Attaching the Viewfinder



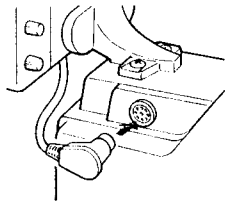
1 Loosen the lock ring, and align and slide the viewfinder into the mount while pulling the pin up.



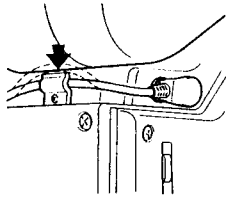
2 Tighten the lock ring.



3 Connect the viewfinder to the VIEWFINDER connector.



4 Clamp the cable.

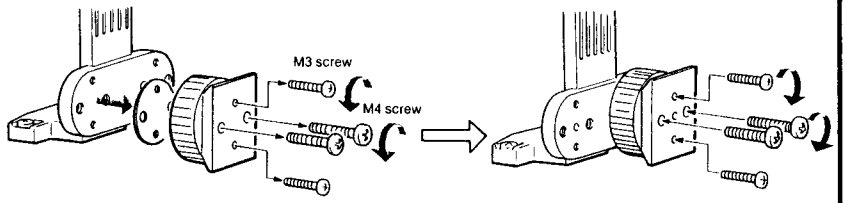


To detach the viewfinder

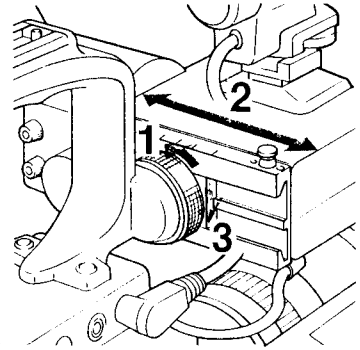
Loosen the lock ring and slide the viewfinder while pulling the pin up.

Looking through the viewfinder with the left eye

Change the position of the viewfinder mount.



Adjusting the viewfinder position



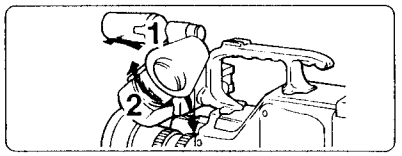
1 Loosen the lock ring.

2 Slide the viewfinder to the left or right to adjust it to the desired position.

3 Tighten the lock ring.

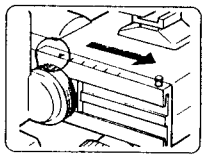
Adjusting the eye cup

1 Move the eye cup up or down for comfortable use.
2 Rotate the eye cup to fit the eye used for viewing.



To insert the unit into the LCH-C55 carrying case (optional)

Slide the viewfinder to adjust the ▼ mark to the lock ring and tighten the lock ring.



The viewfinder must be returned to the right eye position before being inserted into the carrying case.

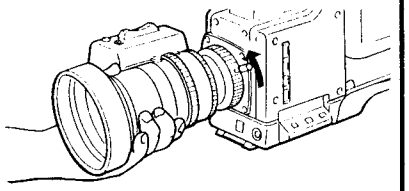
Removing/Attaching the Lens

The supplied lens can be removed and attached as follows.

Removing

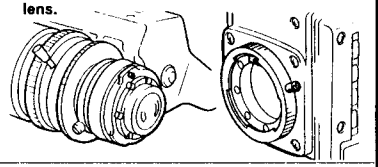
1 Disconnect the lens cable from the lens connector.

2 While holding the supplied lens, turn the mount clamp ring to the left and detach the lens.

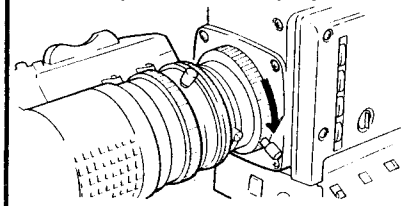


Attaching

1 Align the lens with the mount and attach the lens.

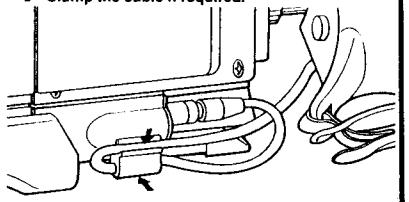


2 Firmly tighten the mount clamp ring.



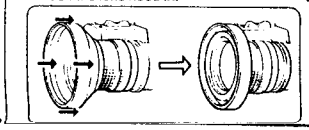
3 Connect the lens cable to the lens connector.

4 Clamp the cable if required.

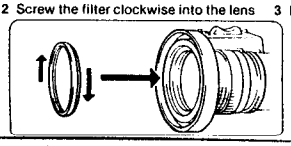


Attaching an optional filter to the lens hood A lens filter with an aperture of 72mm can be attached inside the lens hood. (For details, refer to the accessories instruction manual for filters.)

1 Push the lens hood in.

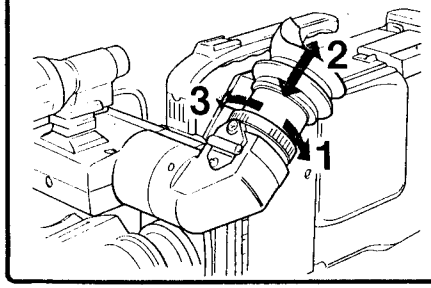


2 Screw the filter clockwise into the lens 3 Pull the lens hood back.



Basic Recording

Diopter Adjustment



Since each operator's eyesight varies, it is necessary to adjust the diopter each time the viewfinder is used by a new operator. Adjust the diopter using the characters on the viewfinder.

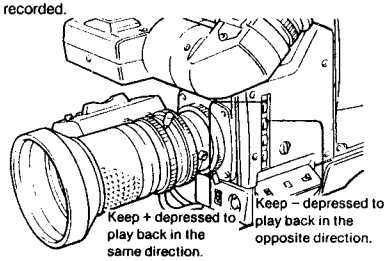
1 Loosen the diopter adjustment ring.

2 Move the eye cup until the characters on the viewfinder are clearly in focus.

3 Tighten the diopter adjustment ring.

Edit Search

Use the EDIT SEARCH button to cue the desired position when resuming recording from recording pause mode partway through a segment already recorded.



Release the button to re-enter the recording pause mode.

Note

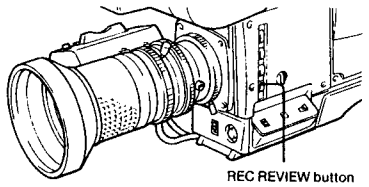
Press the EDIT SEARCH button firmly.

Linking scenes

The next scene will be linked smoothly to the previous scene as long as the cassette is not removed from this unit even if the power is turned off. (A small fraction of the end of the previous scene will be erased to link the subsequent scene smoothly.) If the cassette has been removed from the unit, play back the cassette to the point where the next scene is to be recorded, stop the cassette and start recording. (See page 42 for playback.)

Rec Review

Press the REC REVIEW button when in recording pause mode to check previously recorded scenes.



The unit re-enters the recording pause mode after the last few seconds of the recorded scene are played back.

When remaining in pause mode

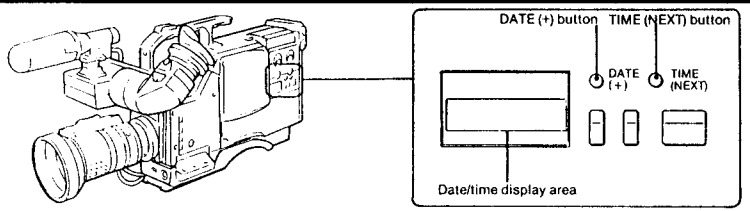
The unit automatically enters the stop mode if left in the recording pause mode for 5 minutes (8 minutes when the power source is from the AC pack or the EXT DC IN 12 V jack) to protect the tape.

Functions

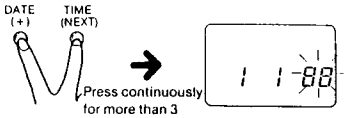
Recording the Date and Time

The date and time can be recorded on the picture.

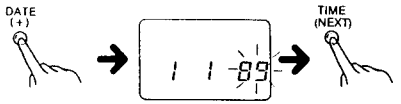
Date and time setting



1 Set to the date/time setting mode.

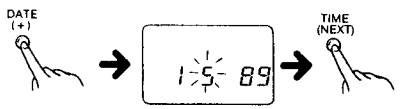


2 Set the "year".

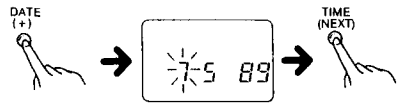


The year can be set from "1988" to "2015."

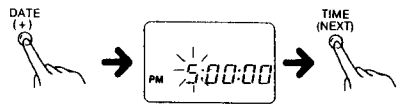
3 Set the "month".



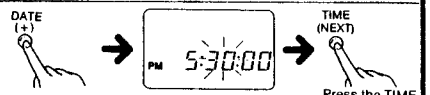
4 Set the "date".



5 Set the "hour".



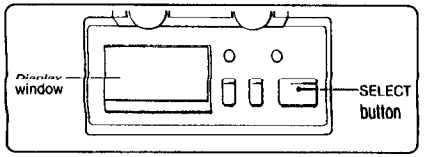
6 Set the "minute".



The time indication disappears and the clock starts operating.

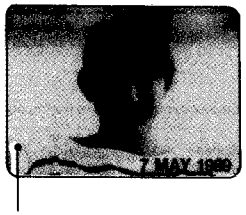
To check the date and time set

Press the SELECT button. The display window will successively show the date → time → linear time counter.



To record the date

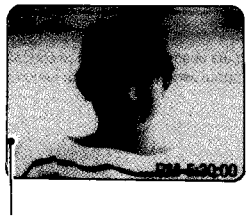
Press the DATE (+) button either when in recording mode or recording pause mode.



Viewfinder screen

To record the time

Press the TIME (NEXT) button either when in recording mode or recording pause mode.



Viewfinder screen

To stop recording the date and time

Press the DATE (+) or TIME (NEXT) button and the date and time on the viewfinder screen will disappear.

Accuracy of the clock

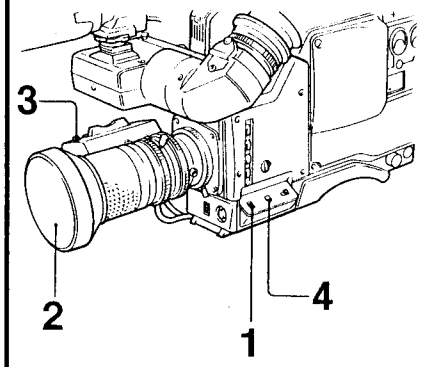
The monthly deviation under normal temperature conditions (25°C) is ±30 seconds. If used under significantly different temperature conditions, the deviation may vary slightly.

Adjustments

Adjusting the White Balance

The white balance is adjusted so that white objects are reproduced as white and lifelike colors are obtained under any lighting conditions. The white balance can be adjusted by setting the WHITE BALANCE switch to 5600K when shooting outdoors and to 3200K when shooting indoors.

The following procedure to adjust the white balance is recommended. When continuing to shoot under the same lighting source, there is no need to readjust the white balance after it has been adjusted once. Readjustment is required when the main lighting source changes.



1 **Set the WHITE BALANCE switch to AUTO.**

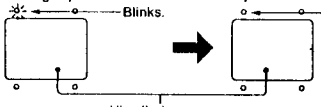
2 **Attach the supplied white lens cap to the lens hood and shoot.**

3 **Set the iris selector to AUTO.**

4 **Press the SET button.**

During adjustment — Blinks.

Adjustment completed — Goes off.



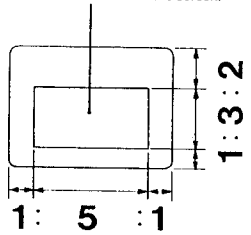
Viewfinder screen

The adjusted value is stored in the memory and is retained even when the power is turned off.

When there is no white lens cap

Zoom in on a white object, such as white paper or white cloth, under the same lighting conditions as those under which the recording will be made. The minimum white area required for adjustment is as follows.

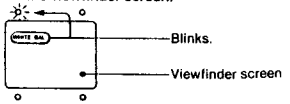
The area of the white object inside the square should be more than 10% of the area of the screen.



No light object (fluorescent light, etc.) should appear inside the square.

If the white balance cannot be adjusted

If the white balance cannot be adjusted when the WHITE BALANCE switch is set to AUTO, the following appears on the viewfinder screen.



Adjustment of the white balance may not be possible for the following two reasons.

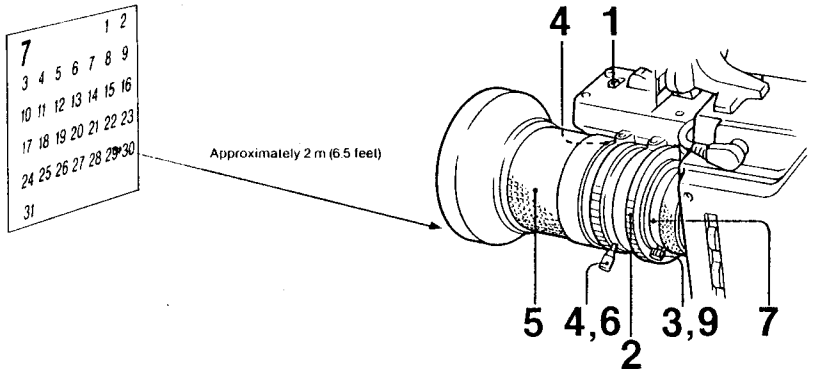
Cause	Procedure
There is insufficient light.	Increase the amount of light or raise the picture level with the GAIN selector.
The object is not white or a very bright light appears in the picture.	Select a more appropriate object.

Readjust the white balance after carrying out the appropriate procedures.

Adjusting the Flange Back

Adjusting the flange back ensures that the object is in focus both at the wide-angle position and at the telephoto position when zooming.

The flange back is pre-set at the factory but must be readjusted if the flange back ring is accidentally turned.



1 **Set the iris selector to MANU.**

2 **Open the iris (set to the 1.6 position).**
Place an object, such as a calender, about 2 m from the lens and illuminate it until the appropriate video output level is obtained.

3 **Loosen the flange back ring lock screw.**

4 **Set the zoom selector to MAN and turn the manual zoom lever to the telephoto position (105).**

5 **Adjust the focus with the focus ring.**

6 **Turn the manual zoom lever to the wide-angle position (10.5).**

7 **Adjust the focus with the flange back ring. Do not move the focus ring.**

8 **Repeat steps 4 through 7 until the focus is adjusted at both the telephoto and wide angle positions.**

9 **Tighten the flange back ring lock screw.**

Editing

Editing Operations Possible with This Unit

The following types of editing operations are possible with this unit.

Insert editing with a single unit

The camera picture and microphone sounds can be edited with this unit.

Editing with a VCR equipped with the CONTROL L connector

Allows assemble editing and insert editing while playing back on the EDC-55. Use the RM-E100V video editing controller.

Editing with a VCR equipped with the CONTROL S IN jack

Allows assemble editing while playing back on the EDC-55. Use the RM-E100V video editing controller.

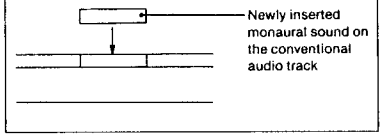
Transferring the contents of a tape to another

Another copy of a tape can be created by playing back on this unit while recording on another VCR.

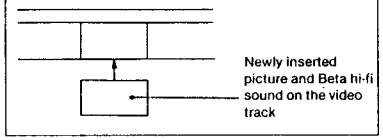
Insert editing

Insert editing refers to inserting new sound or picture onto a pre-recorded tape.

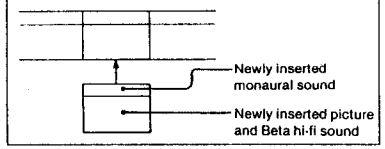
Insert new monaural sound. (audio dubbing)



Insert new picture and Beta hi-fi sound.

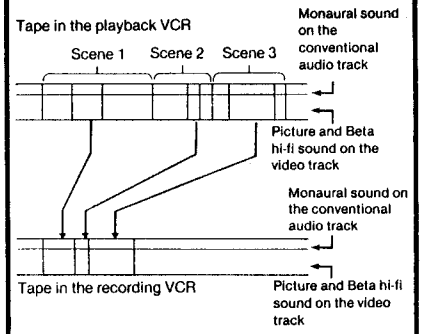


Insert new picture, Beta hi-fi sound and monaural sound.



Assemble editing

Assemble editing refers to editing the picture, sound and CTL (control) signals together.


Tape in the playback VCR
Scene 1
Scene 2
Scene 3
Monaural sound on the conventional audio track
Picture and Beta hi-fi sound on the video track
Monaural sound on the conventional audio track
Tape in the recording VCR
Picture and Beta hi-fi sound on the video track

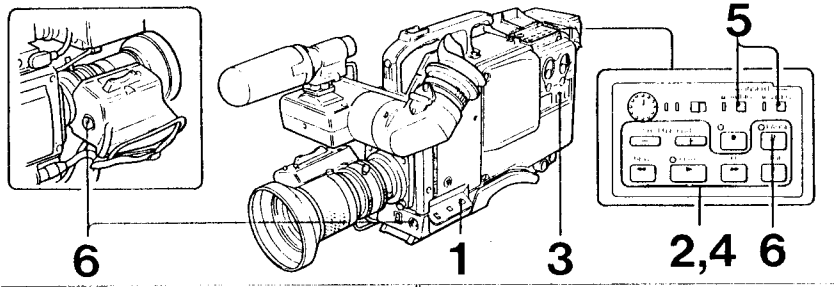
CAUTION

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized duplication of such material may be contrary to the provisions of the copyright laws.

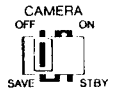
Note

Avoid repetition of editing tapes, as the picture and tone quality will be impaired noticeably for newly edited tapes.

Insert Editing with a Single Unit



1 **Set the CAMERA/VTR switch to CAMERA OFF • VTR SAVE.**



2 **While playing back the tape, search for the OUT (insert end) point using the tape play buttons or SHUTTLE EDIT button, and enter the playback pause mode there.**

3 **Press the COUNTER RESET button to reset the linear time counter to 0:00:00.**
Check that the linear time counter is reset by displaying it in the display window.

4 **Search for the IN (insert start) point using the tape operation buttons or SHUTTLE EDIT button, and enter the playback pause mode there.**

5 **Press the INSERT button so that the lamp lights up and select the items to be inserted.**

To insert monaural sound (audio dubbing)	INSERT — AUDIO (lit) — VIDEO
To insert picture and Beta hi-fi sound	INSERT — AUDIO — VIDEO (lit)
To insert picture, Beta hi-fi sound and monaural sound	INSERT — AUDIO (lit) — VIDEO (lit)

When the INSERT lamp is on, power to the camera is automatically turned on. Only the PAUSE ❚❚ and STOP ■ buttons work.

6 **Press the VTR button (either on the lens or camera) or the PAUSE ❚❚ button to start inserting.**
For audio dubbing, press the PAUSE ❚❚ button. The insert operation automatically stops when it reaches the point where the counter was reset. Recording can be paused before the tape reaches the OUTPUT point by pressing the VTR button (or the PAUSE ❚❚ button). The insert operation will stop when it reaches the point where the counter was reset.

Recording mode

During insert editing, the recording mode is automatically set to fⅡ or fⅢ according to the mode in which the tape has been recorded.

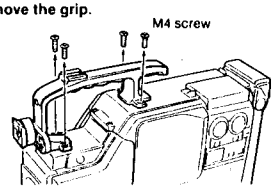
To cancel insert editing

Press the STOP ■ button.

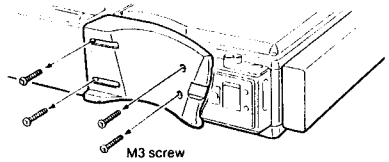
Detaching the Camera from the VCR

The VCR block can be used as a portable unit by attaching a VTR adaptor. Follow the steps below to detach the camera from the VCR.

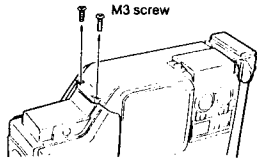
1 Remove the grip.



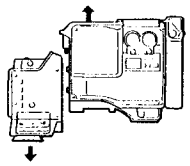
2 Remove the shoulder pad.



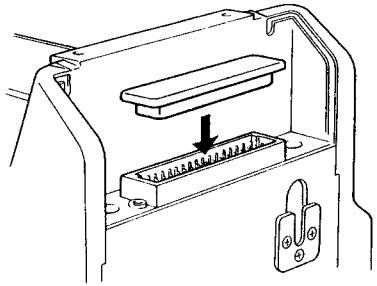
3 Remove the connector screws.



4 Detach the camera from the VCR.



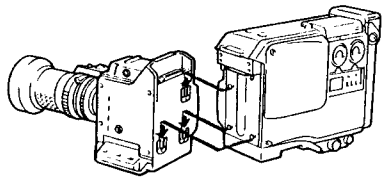
5 When the camera is not in use, cover the connector with the connector cover (supplied).



The connector should be covered to prevent dust and moisture from entering the unit and damaging the circuits.

To assemble

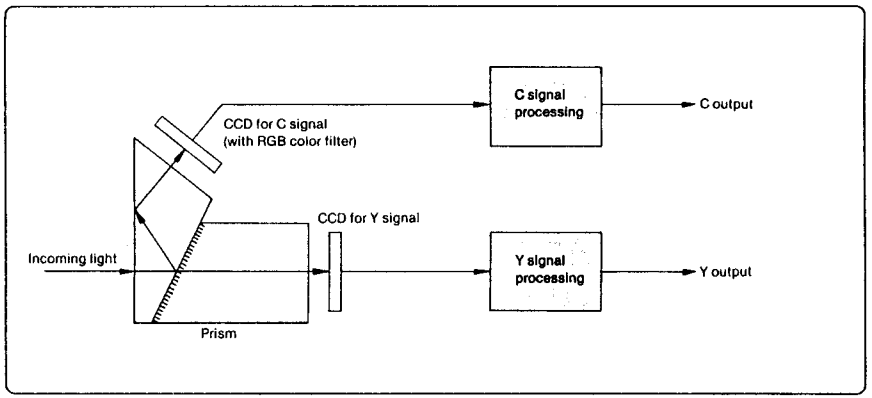
1 Align the camera and the VCR and attach them.



2 Tighten the screws.

3 Attach the shoulder pad and grip.

CCD Chips

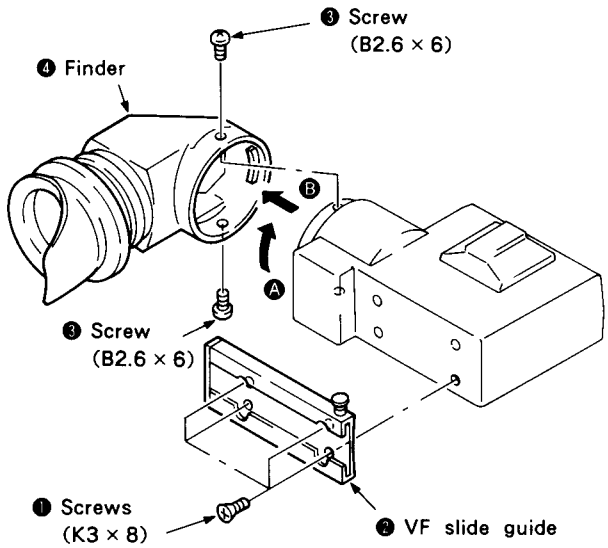


The camera is equipped with a special CCD each for the Y (luminance) signal and the C (chrominance) signal. These signals are output separately to the VCR. The Y signal, which determines the resolution, has a wide frequency band that maximizes the high-density picture signals of the CCD. Superior color reproduction capability is achieved through the CCD with an RGB filter dedicated to the C signal, which, in a camera with a 1-chip CCD, is shared between the Y signal and C signal.

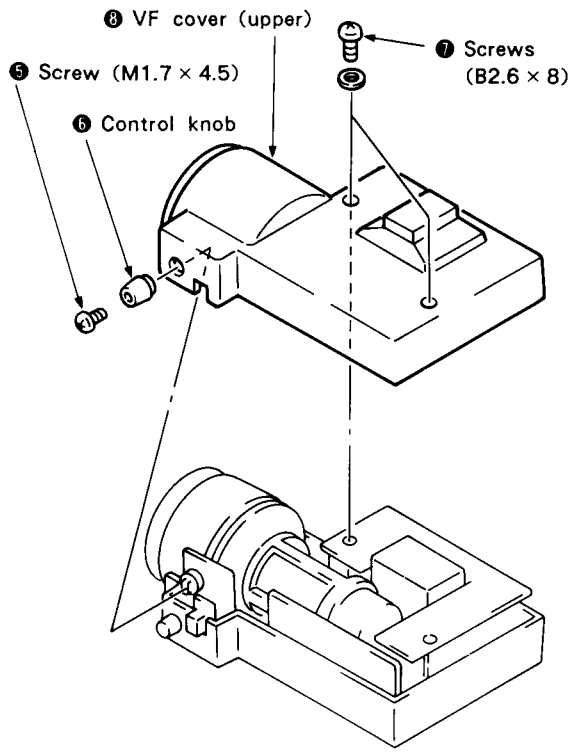
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF VF COVER (UPPER)

1) Remove four screws ❶ and remove the VF slide guide ❷.
2) Remove two screws ❸, and turn the finder ❹ in the direction of arrow Ⓐ and remove in the direction of arrow Ⓑ.

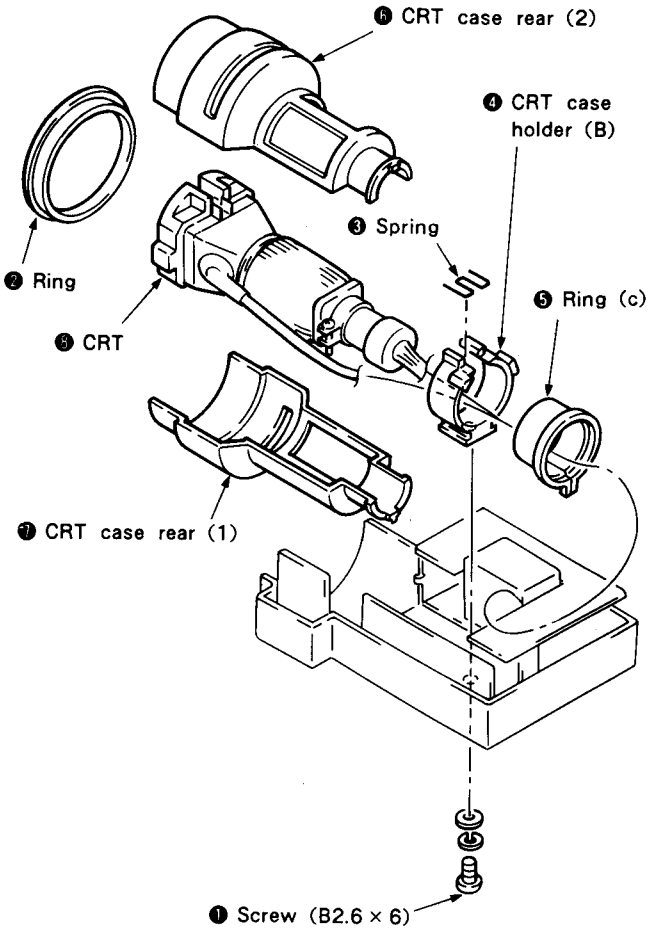


3) Remove the screw ❺ and remove the control knob ❻.
4) Remove two screws ❼ and remove VF cover (upper) ❽.



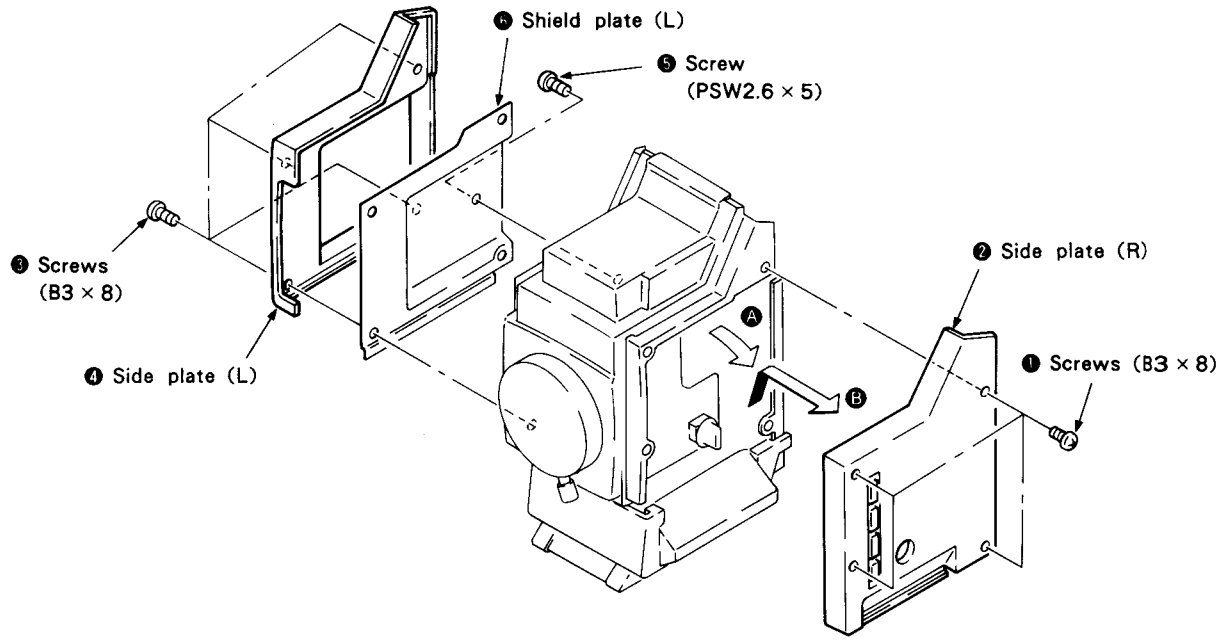
2-2. REMOVAL OF CRT

1) Remove the VF cover (upper) according to 2-1.
2) Remove the screw ❶.
3) Remove the ring ❷.
4) Remove the spring ❸ and remove the CRT case holder (B) ❹.
5) Remove the ring (c) ❺.
6) Remove CRT case rear (2) ❻ and CRT case rear (1) ❼, and remove CRT ❽.



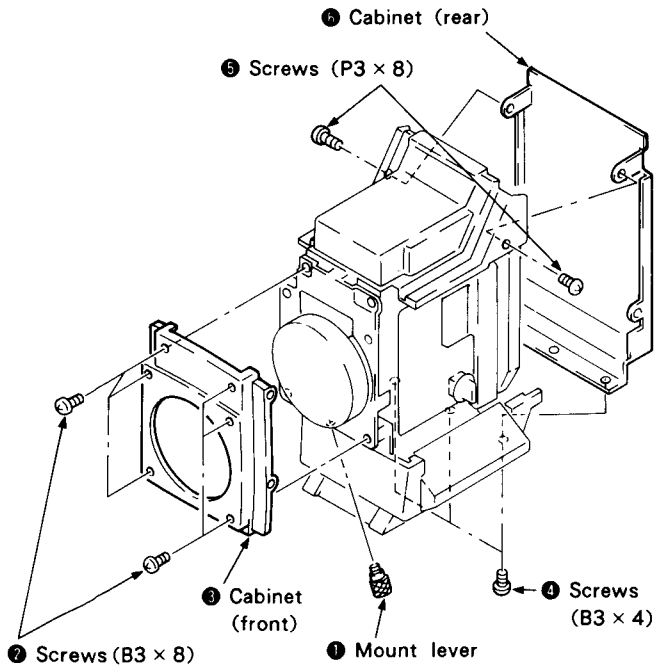
2-3. REMOVAL OF CAMERA BLOCK SIDE PLATE (R) AND (L)

1) Remove four screws ❶, and tilt the side plate (R) ❷ in the direction of arrow Ⓐ slightly and remove in the direction of arrow Ⓑ.
2) Remove four screws ❸ and remove the side plate (L) ❹.
3) Remove the screw ❺ and remove the shield plate (L) ❻.



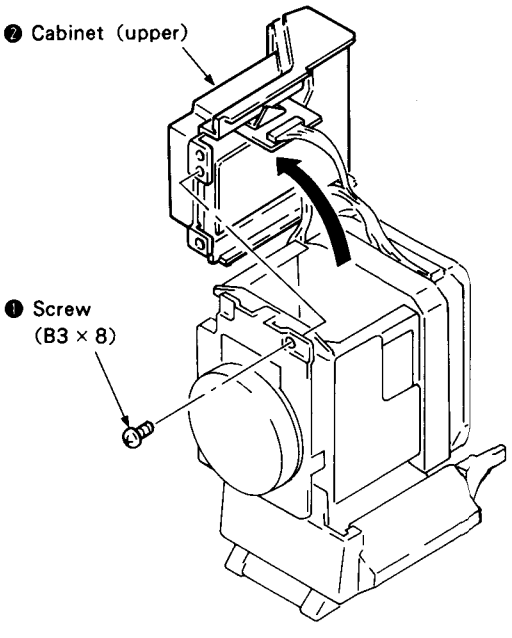
2-4. REMOVAL OF CAMERA BLOCK CABINETS (FRONT) AND (REAR)

1) Remove the side plate (R) and (L) according to 2-3.
2) Remove the mount lever ❶.
3) Remove the six screws ❷ and remove the cabinet (front) ❸.
4) Remove the three screws ❹ and the two screws ❺, and remove the cabinet (rear) ❻.



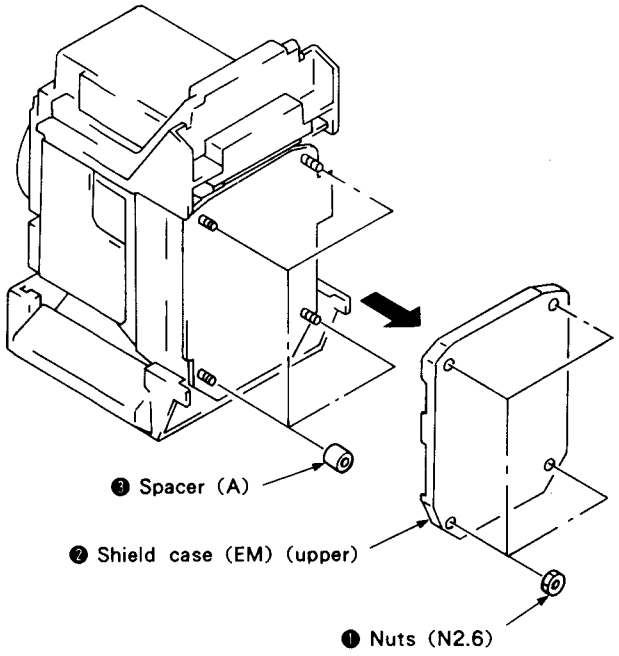
2-5. OPENING OF CAMERA BLOCK CABINET (UPPER)

1) Remove the cabinets (front) and (rear) according to 2-4.
2) Remove the screw ❶ and open the cabinet (upper) ❷ in the direction of arrow.

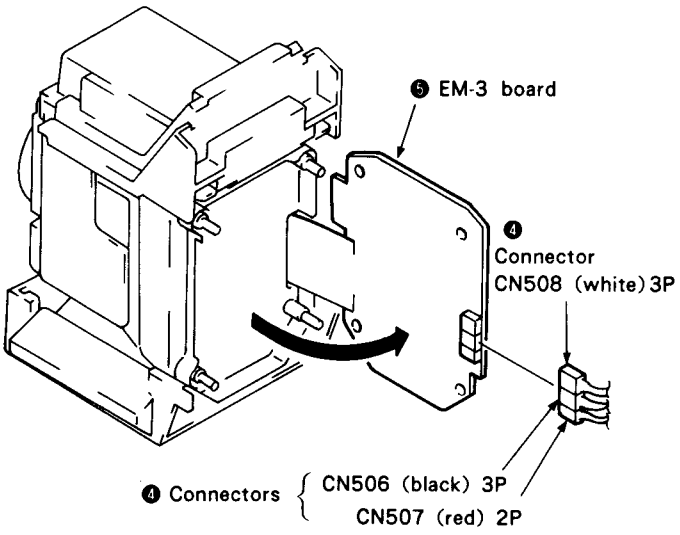


2-6. OPENING OF THE EM-3 BOARD

1) Remove the cabinets (front) and (rear) according to 2-4.
2) Remove the four nuts ❶ and remove the shield case (EM) (upper) ❷.
3) Remove the four spacers (A) ❸.

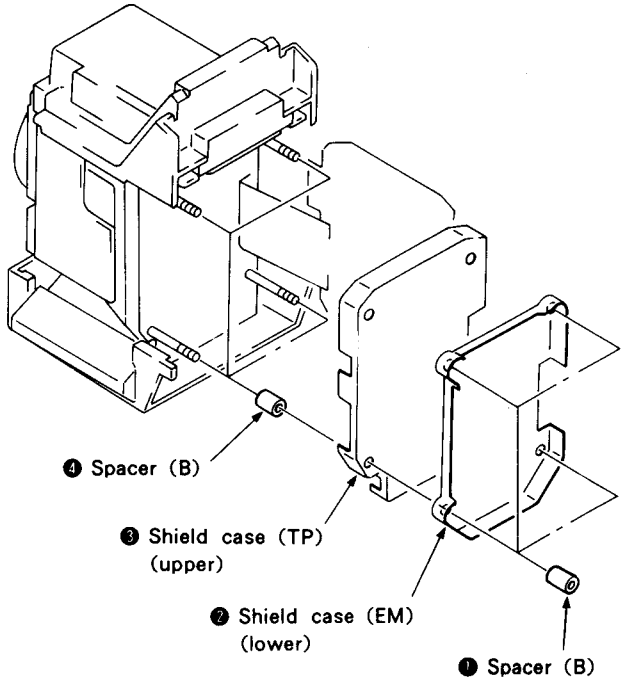


4) Disconnect three connectors ❹ (CN506, CN507 and CN508).
5) Open the EM-3 board ❺ in the direction of arrow.

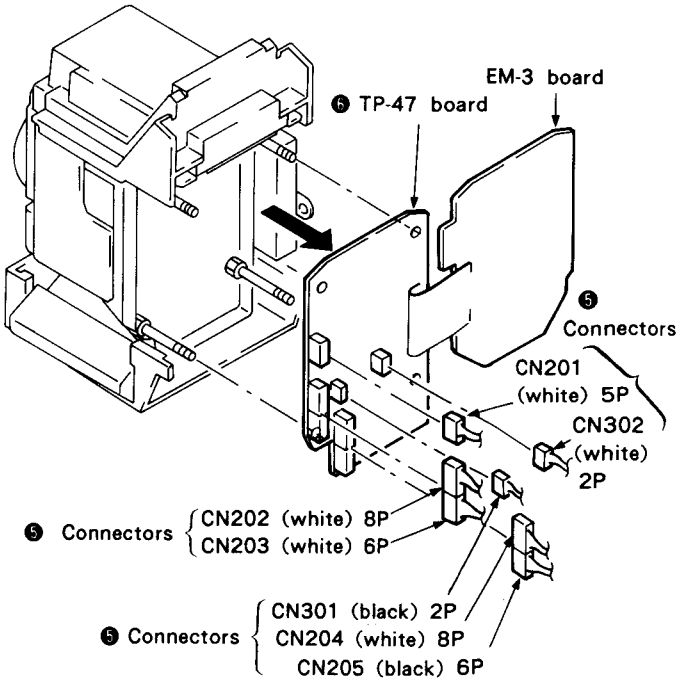


2-7. REMOVAL OF THE TP-47 BOARD

1) Open the EM-3 board according to 2-6.
2) Remove four spacer (B) ❶.
3) Remove the shield case (EM) (lower) ❷ and remove shield case (TP) (upper) ❸.
4) Remove four spacers (B) ❹.

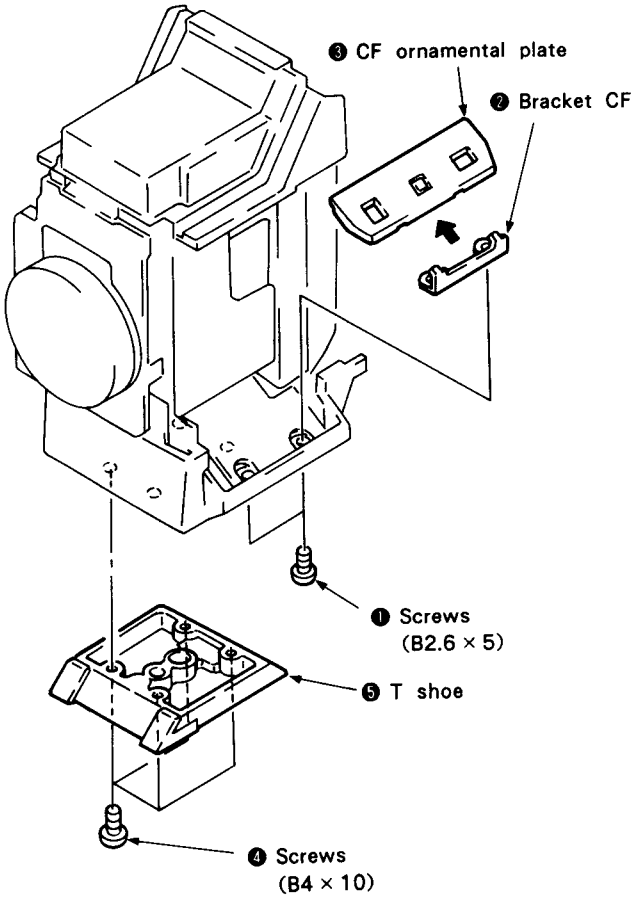


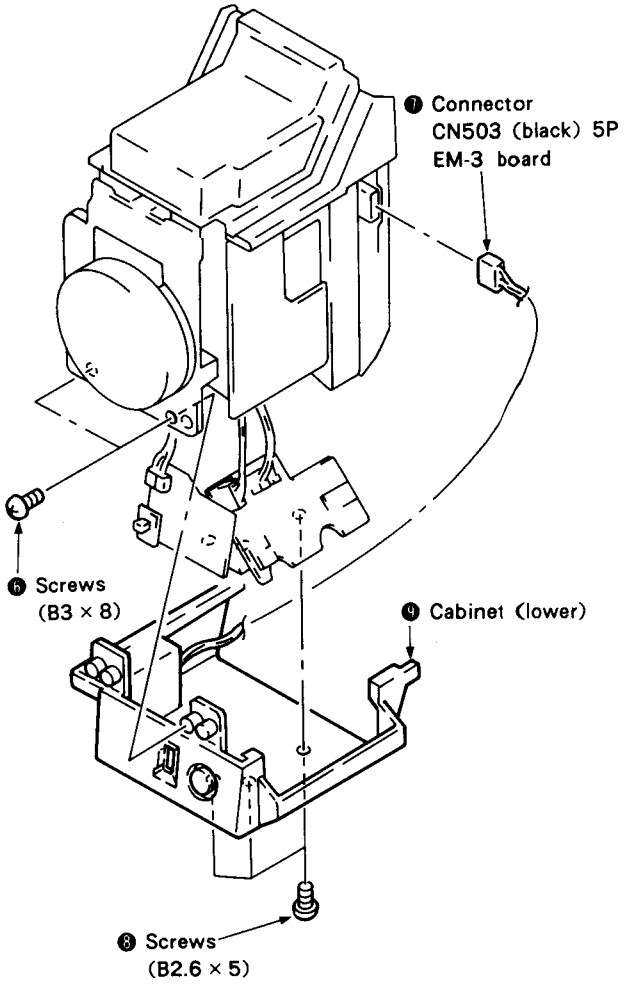
5) Disconnect seven connectors ❺ (CN201, CN202, CN203, CN204, CN205, CN301 and CN302).
6) Remove the TP-47 board ❻ in the direction of arrow.



2-8. REMOVAL OF CABINET (LOWER)

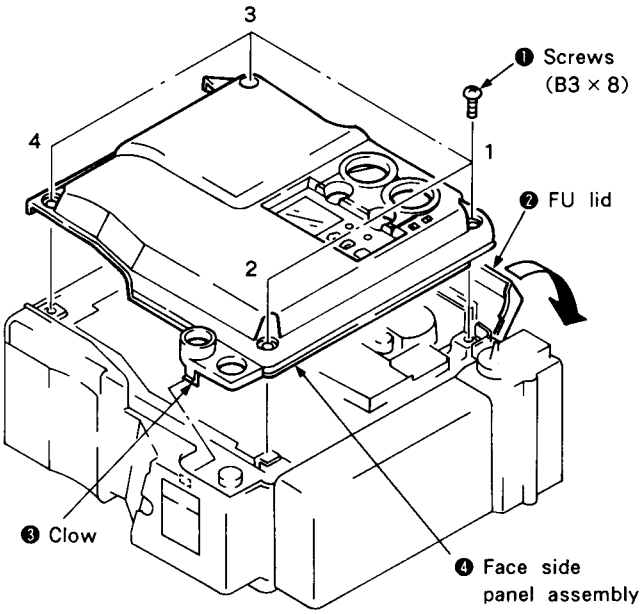
1) Remove the cabinet (front) and (rear) according to 2-4.
2) Remove two screws ❶ and remove the bracket CF ❷.
3) Remove the CF ornamental plate ❸ in the direction of arrow.
4) Remove four screws ❹ and remove the T shoe ❺.
5) Remove two screws ❻
6) Disconnect the connector ❼ (CN503).
7) Remove three screws ❽ and remove the cabinet (lower) ❾.





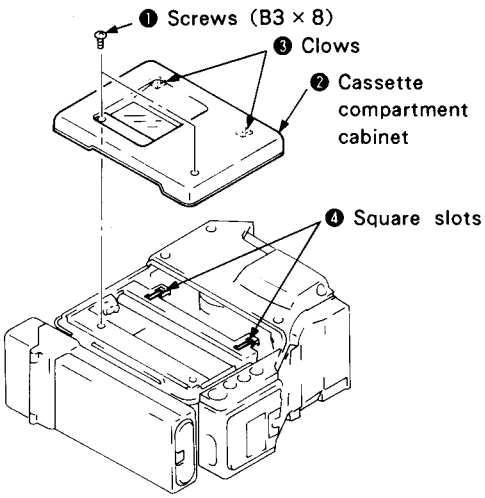
2-9. REMOVAL OF FACE SIDE PANEL ASSEMBLY

1) Remove four screws ❶.
2) Open the FU lid ❷ in the direction of arrow.
3) Remove the clow ❸ and remove the face side panel assembly ❹. (When mounting, tighten the screws ❶ in the order of 1, 2, 3 and 4.)



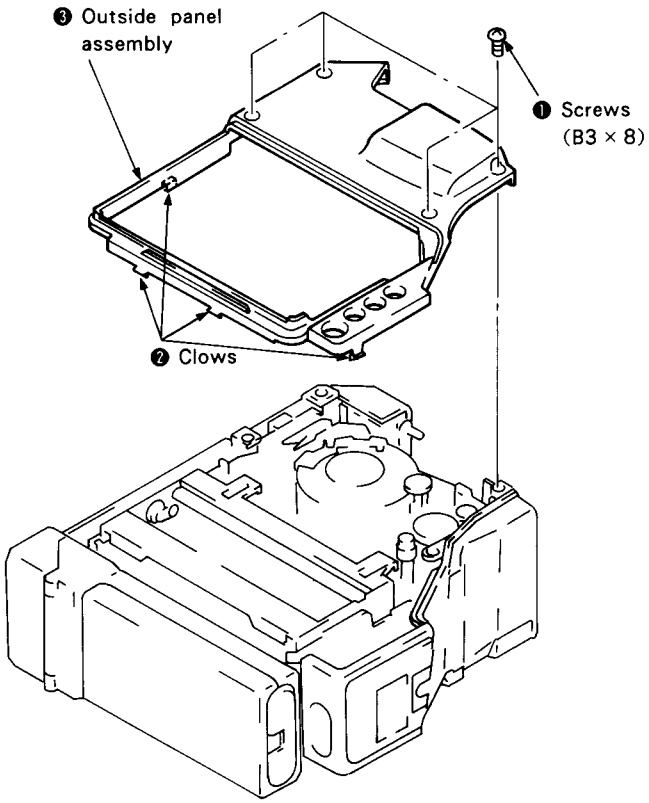
2-10. REMOVAL OF CASSETTE COMPARTMENT CABINET

1) Remove two screws ❶.
2) Remove the cassette compartment cabinet ❷. (Before mounting, insert two clows ❸ to two square slots ❹.)



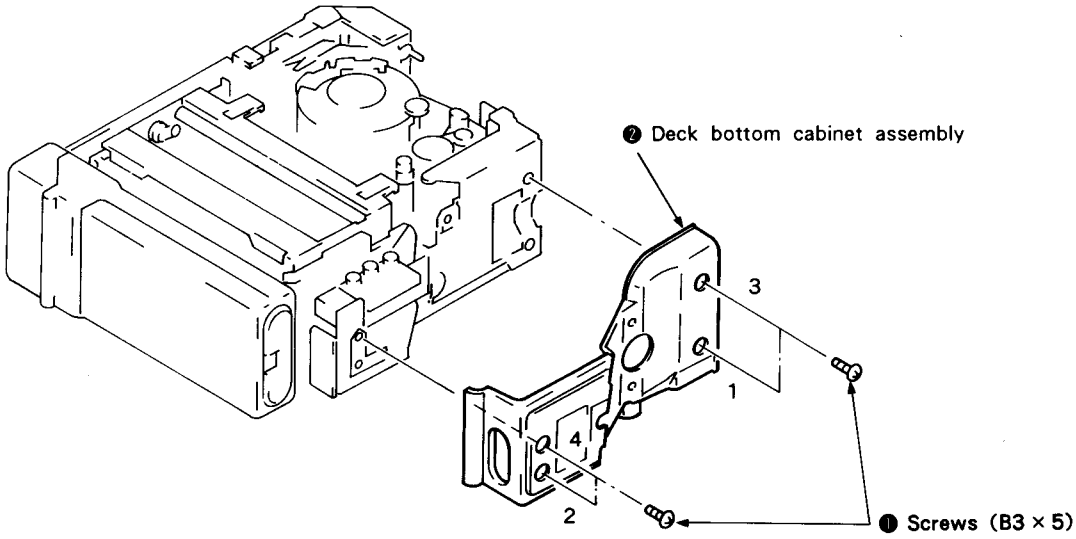
2-11. REMOVAL OF OUTSIDE PANEL ASSEMBLY

1) Remove four screws ❶.
2) While removing four clows ❷, remove the outside panel assembly ❸.



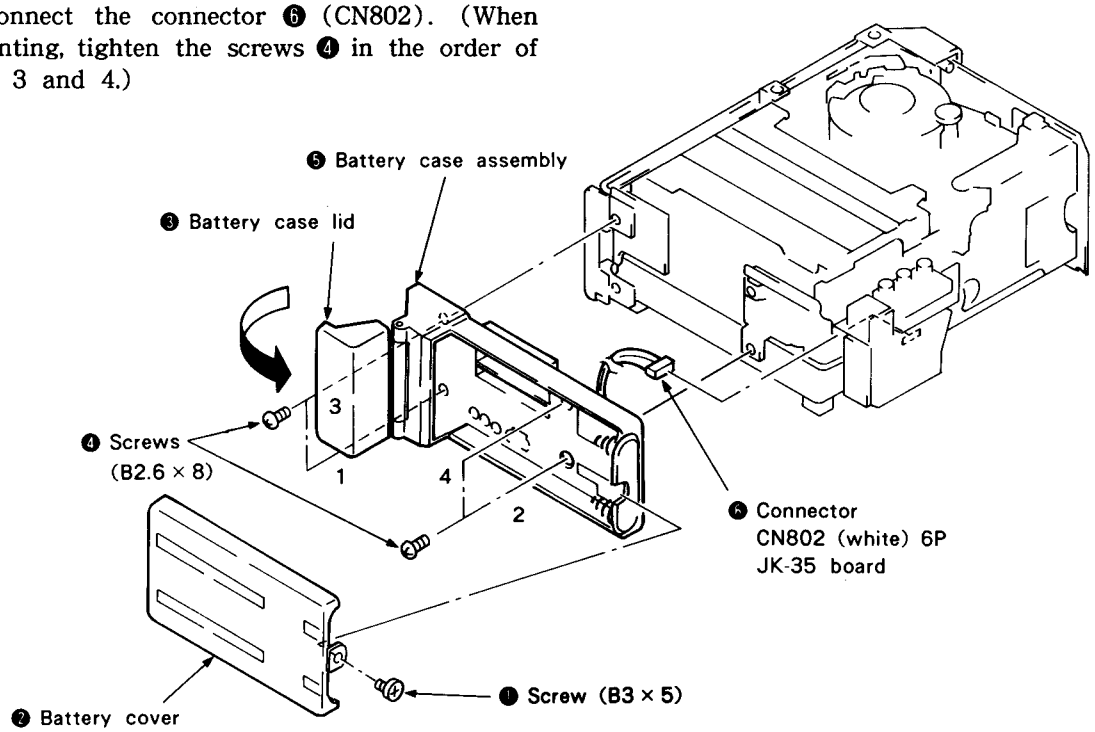
2-12. REMOVAL OF DECK BOTTOM CABINET ASSEMBLY

1) Remove four screws ❶.
2) Remove the deck bottom cabinet assembly ❷. (When mounting, tighten the screws ❶ in the order of 1, 2, 3 and 4.)



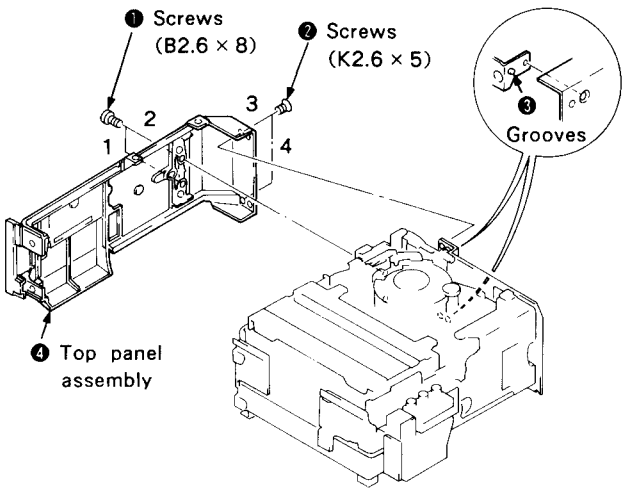
2-13. REMOVAL OF BATTERY CASE ASSEMBLY

1) Remove the screw ❶ and remove the battery cover ❷.
2) Open the battery case lid ❸ in the direction of arrow.
3) Remove four screws ❹.
4) Remove the battery case assembly ❺.
5) Disconnect the connector ❻ (CN802). (When mounting, tighten the screws ❹ in the order of 1, 2, 3 and 4.)



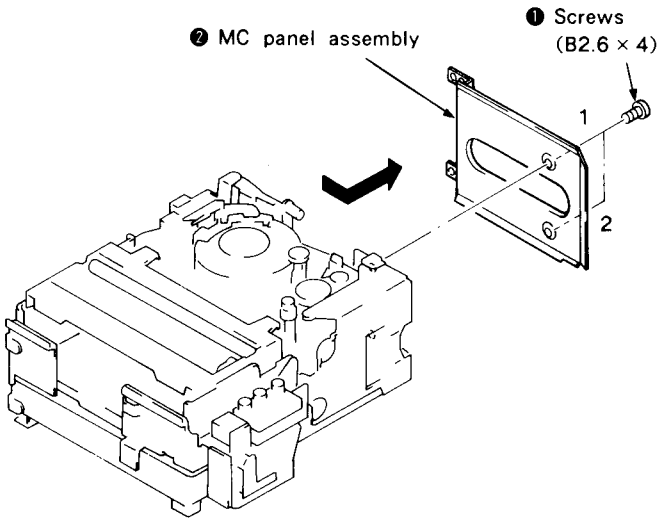
2-14. REMOVAL OF TOP PANEL ASSEMBLY

1) Remove two screws ❶ and ❷ respectively.
2) Remove the top panel assembly ❹ while removing two grooves ❸. (When mounting, tighten the screws ❶ and ❷ in the order of 1, 2, 3 and 4.)



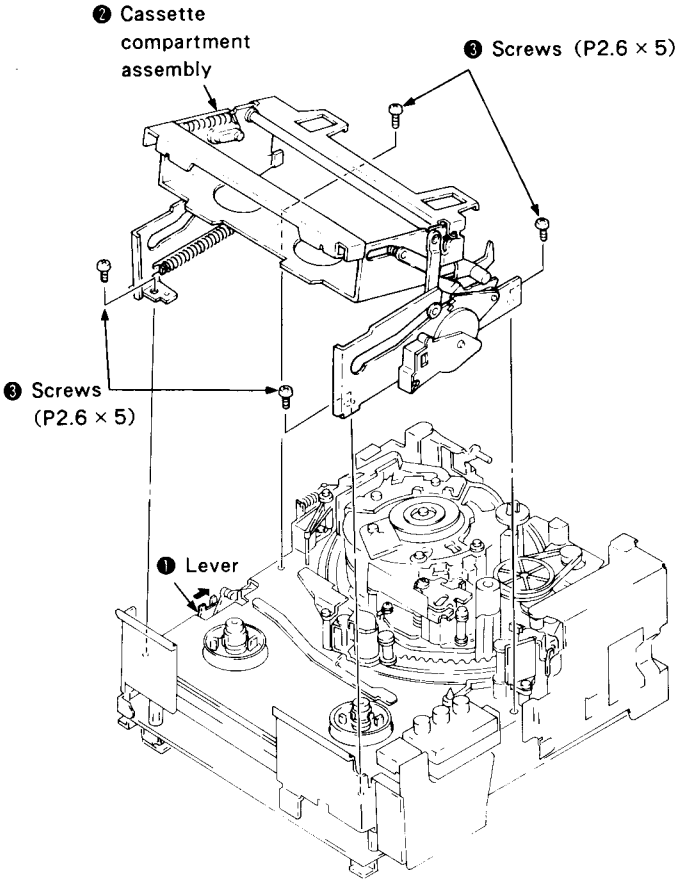
2-15. REMOVAL OF MC PANEL ASSEMBLY

1) Remove two screws ❶.
2) Remove the MC panel assembly ❷ in the direction of arrow. (When mounting, tighten the screws ❶ in the order of 1 and 2.)



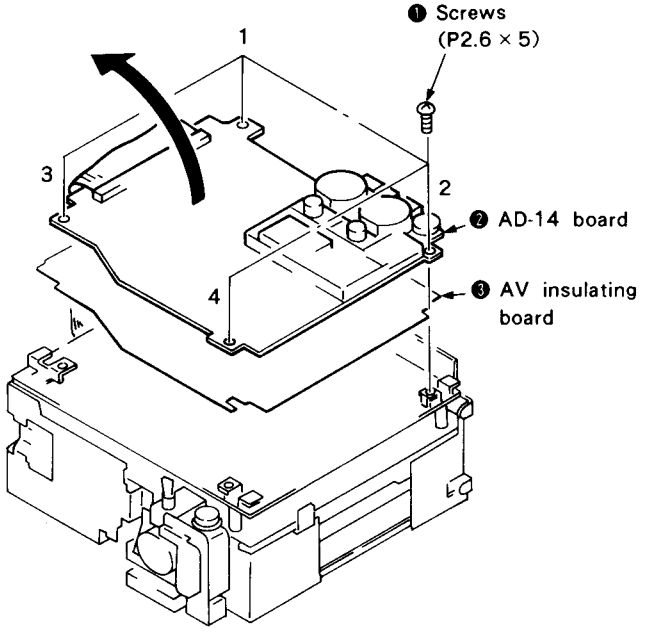
2-16. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

1) Slide the lever ❶ in the direction of arrow and set the cassette compartment assembly ❷ to the EJECT state.
2) Remove four screws ❸ and remove the cassette compartment assembly ❷.



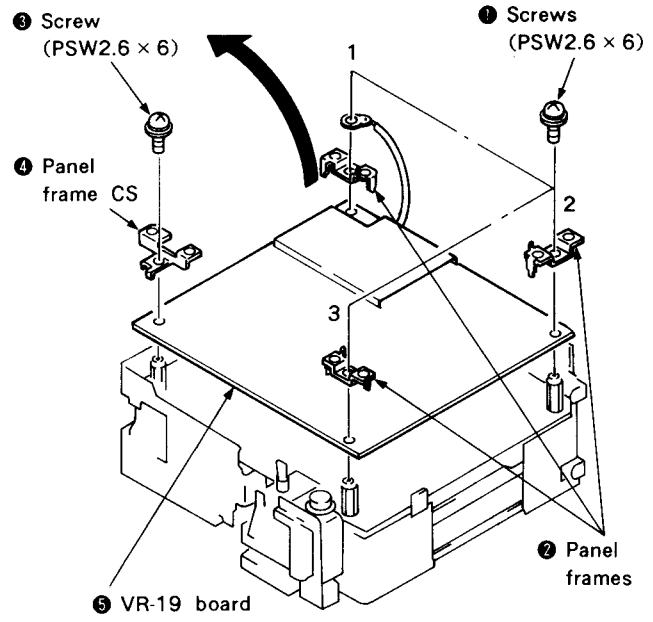
2-17. OPENING OF THE AD-14 BOARD

1) Remove four screws ❶.
2) Open the AD-14 board ❷ in the direction of arrow.
3) Remove the AV insulator ❸. (When mounting, tighten the screws ❶ in the order of 1, 2, 3 and 4.)



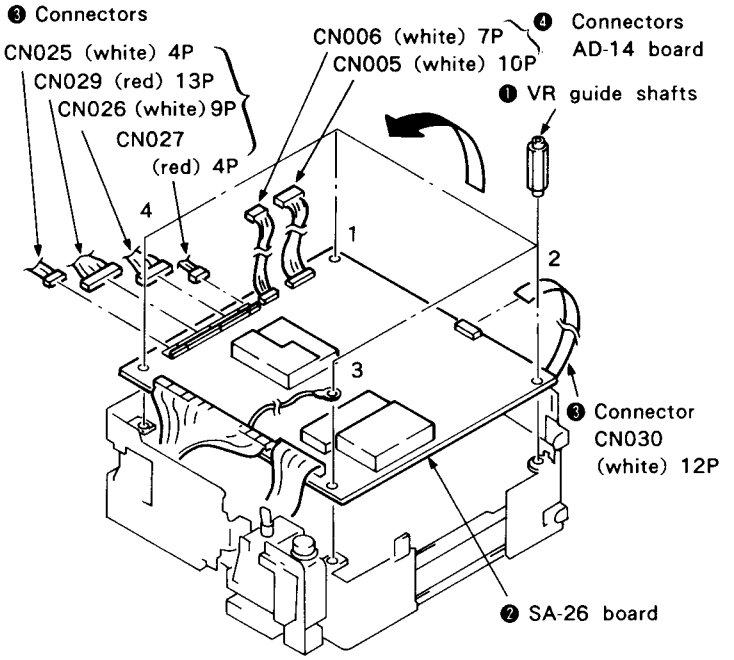
2-18. OPENING OF THE VR-19 BOARD

1) Open the AD-14 board according to 2-17.
2) Remove three screws ❶ and remove three panel frames ❷.
3) Remove the screw ❸ and remove the panel frame CS ❹.
4) Remove the VR-19 board ❺ and open in the direction of arrow. (When mounting, tighten the screws ❶ in the order of 1, 2 and 3.)



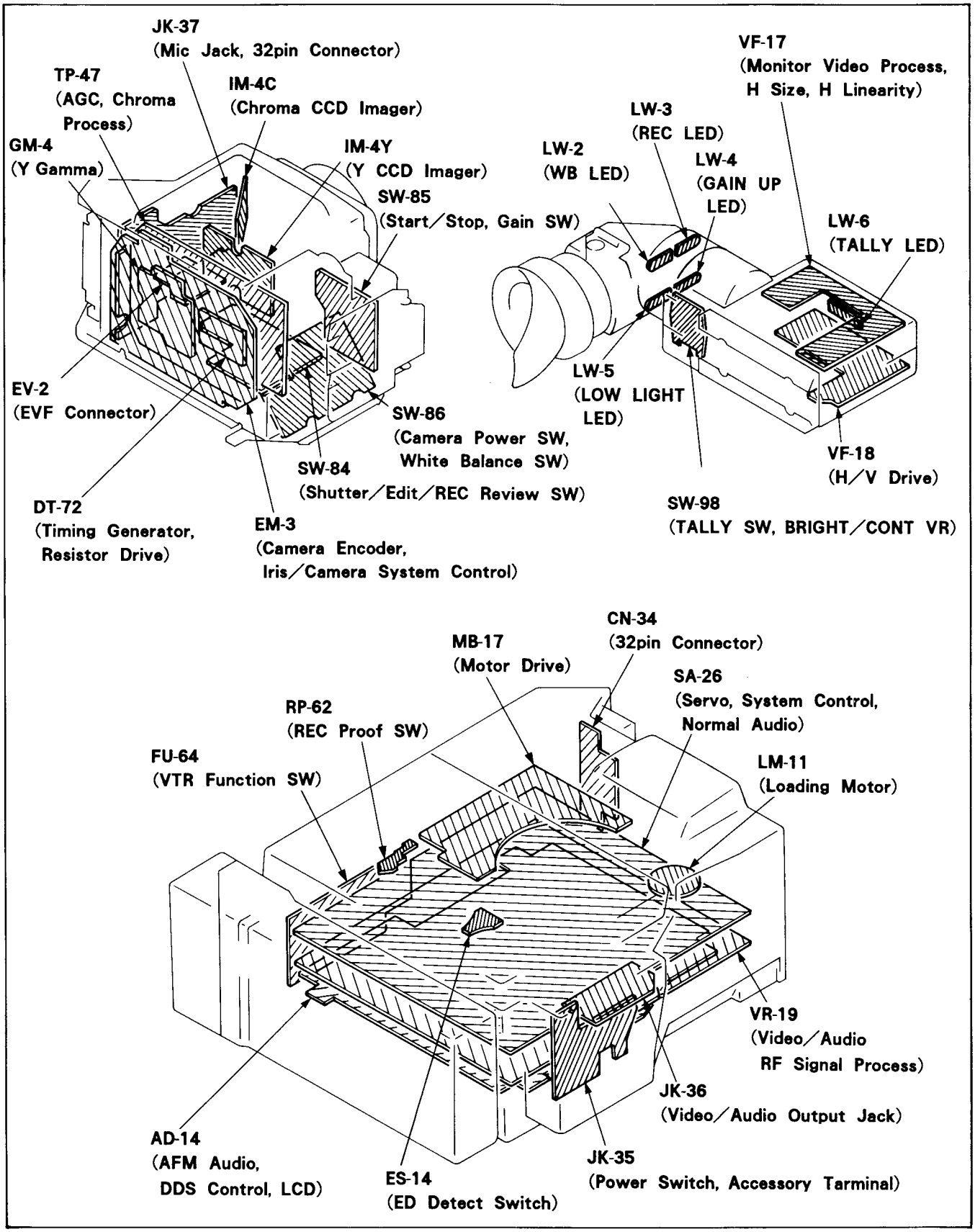
2-19. OPENING OF THE SA-26 BOARD

1) Open the VR-19 board according to 2-18.
2) Remove four VR guide shafts ❶.
3) Remove the SA-26 board ❷.
4) Disconnect five connectors ❸ (CN025, CN026, CN027, CN029 and CN030).
5) Disconnect two connectors ❹ (CN005 and CN006).
6) Open the SA-26 board ❷ in the direction of arrow. (When mounting, tighten the VR guide shaft ❶ in the order of 1, 2, 3 and 4.)

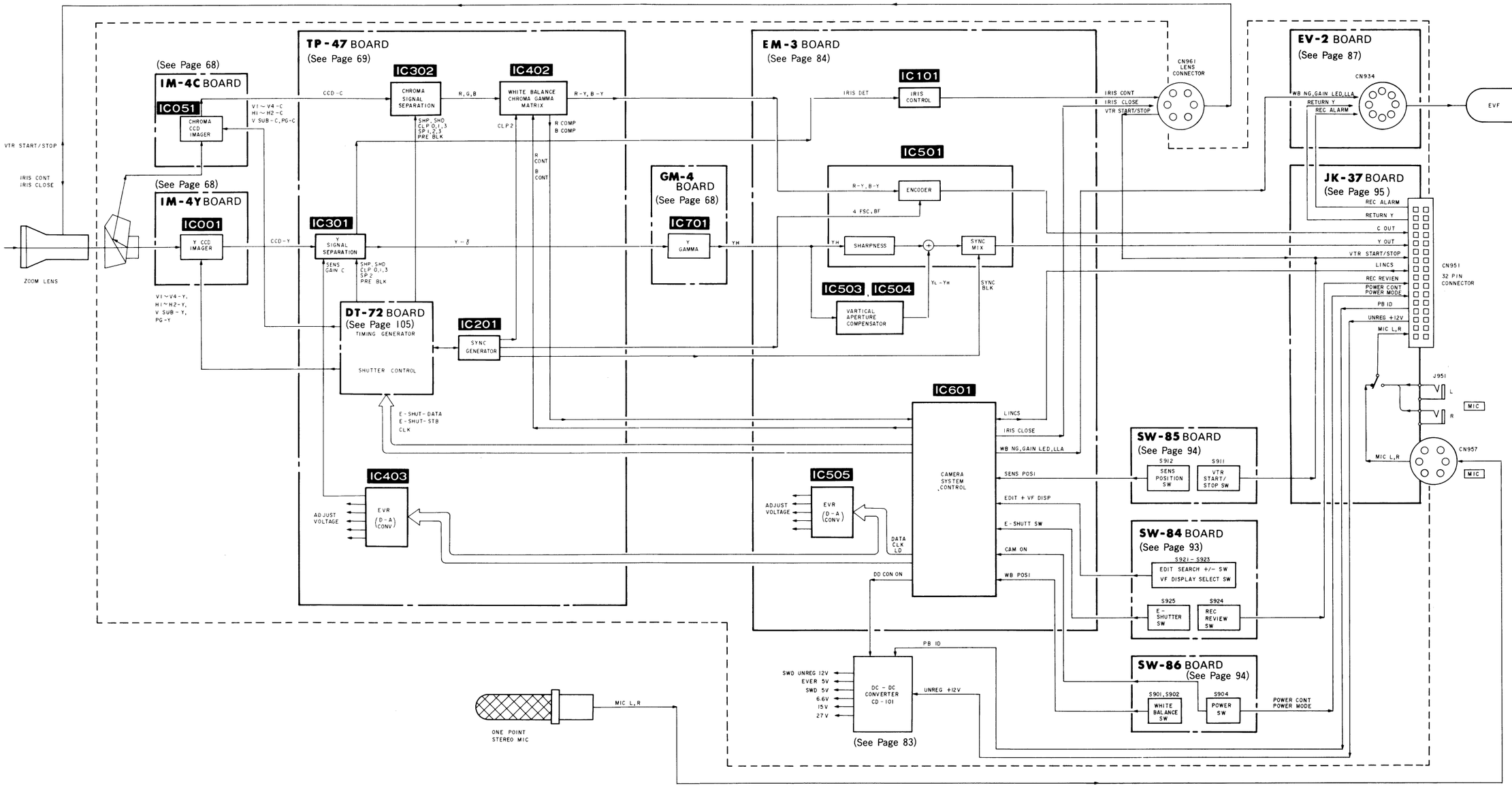


SECTION 3
DIAGRAMS

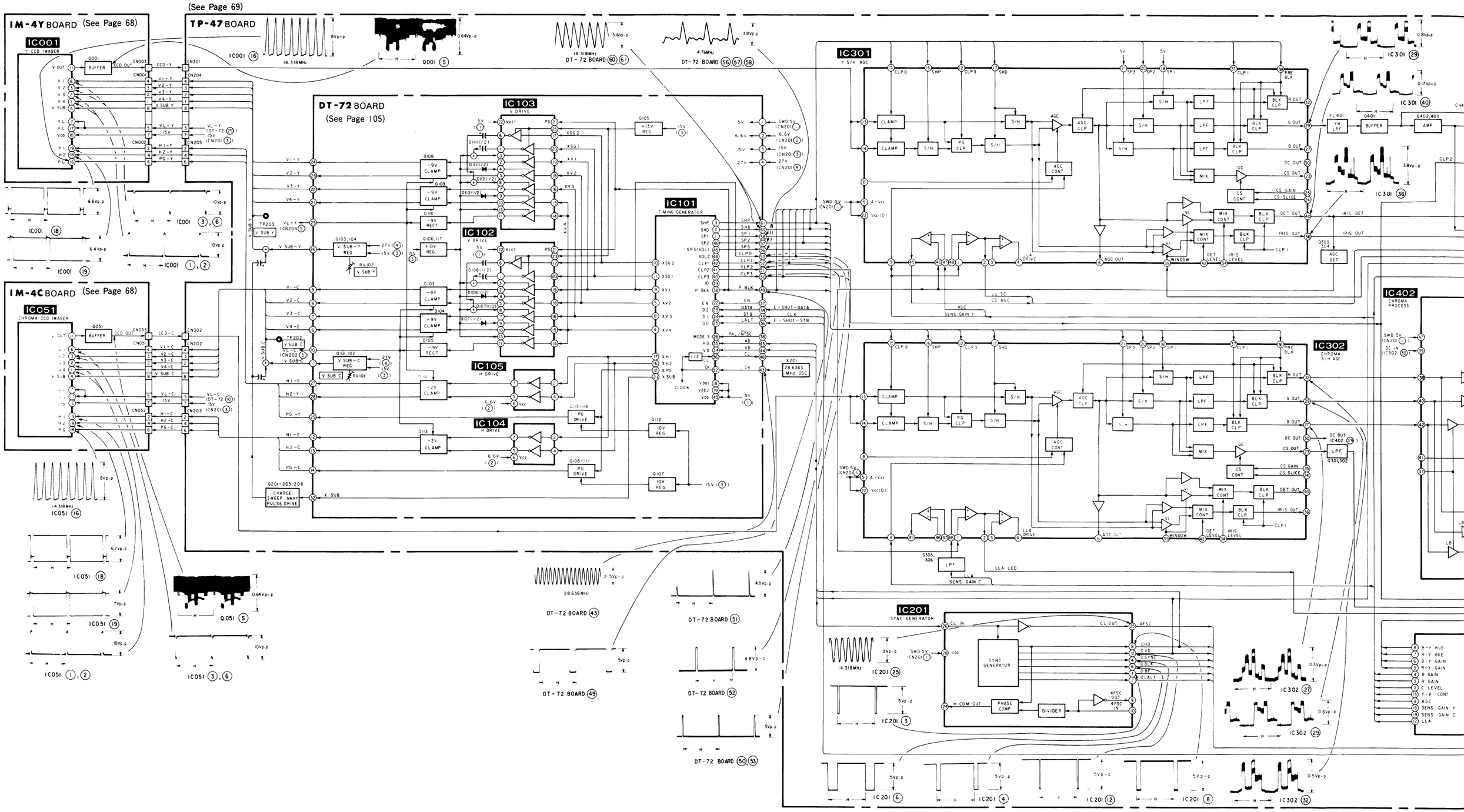
3-1. CIRCUIT BOARDS LOCATION

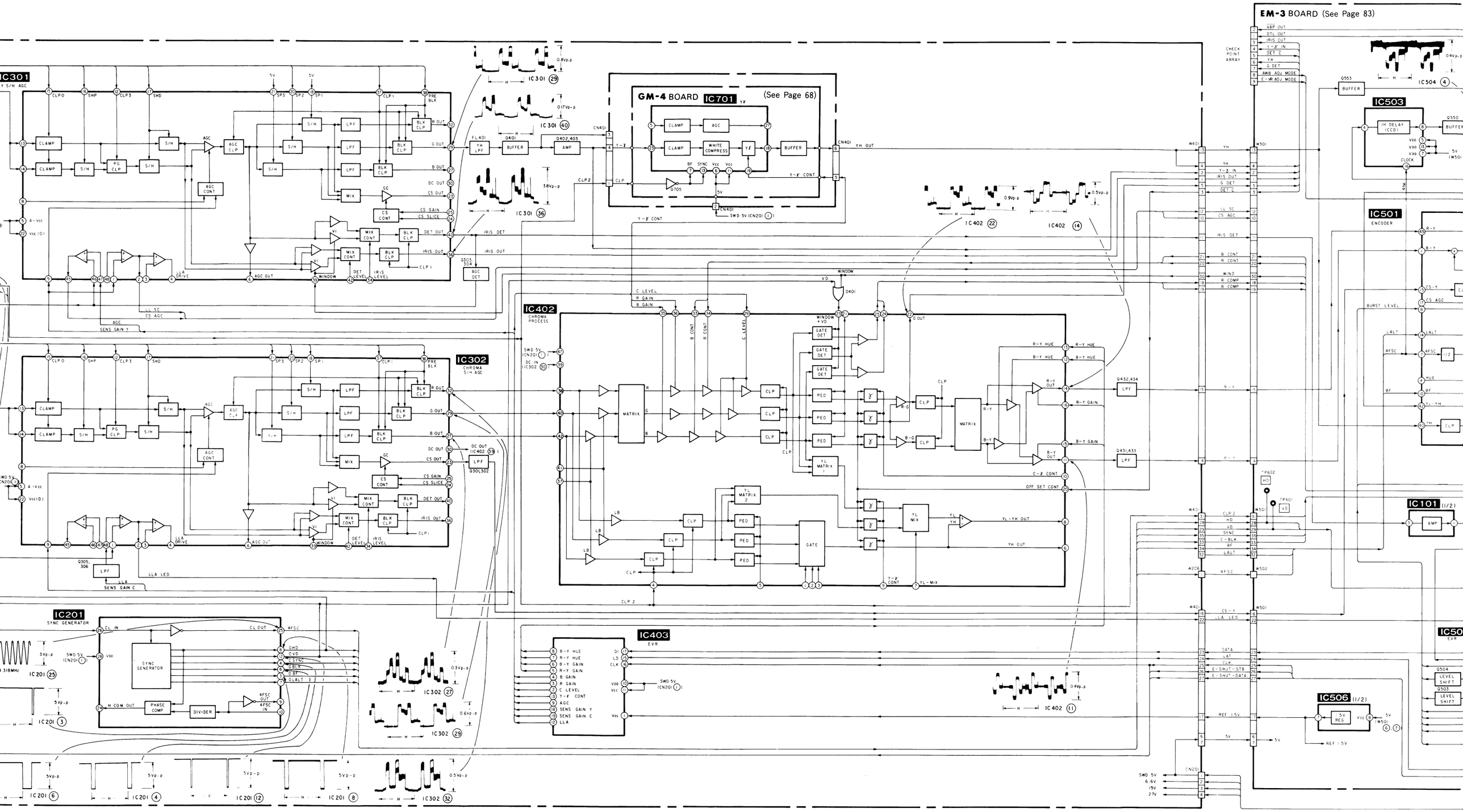


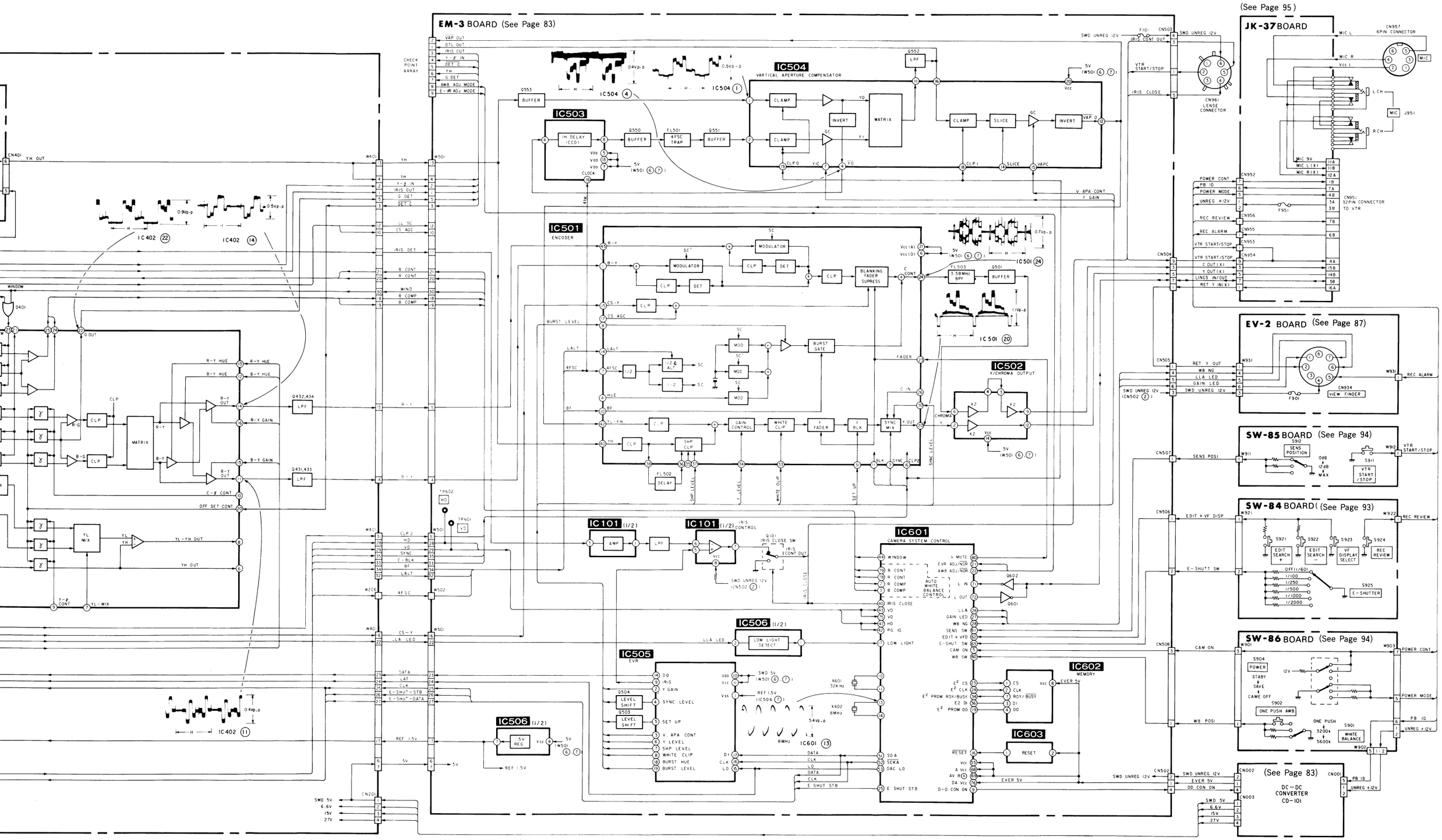
3-2. CAMERA BLOCK OVERALL BLOCK DIAGRAM



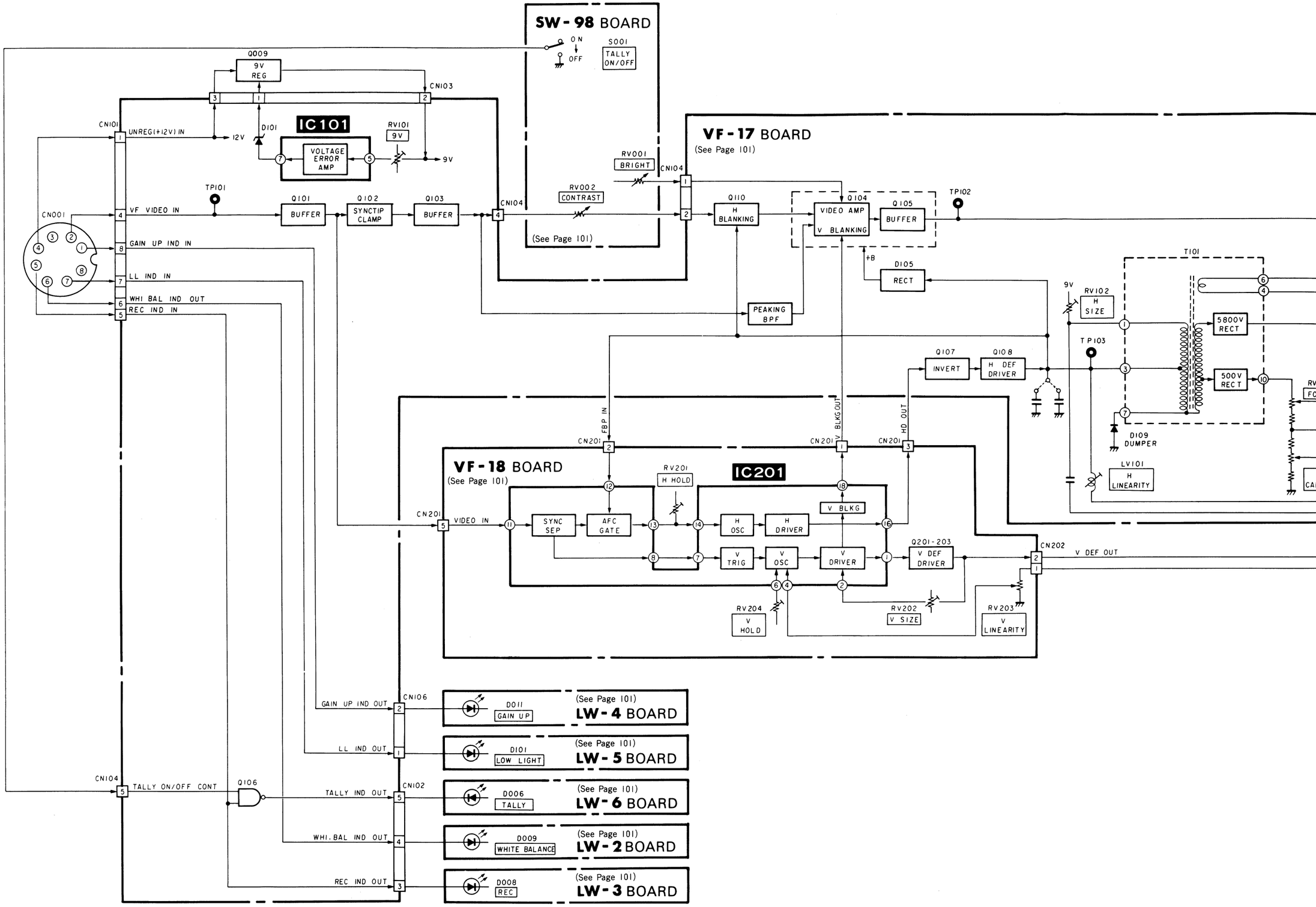
3-3. CAMERA BLOCK DIAGRAM

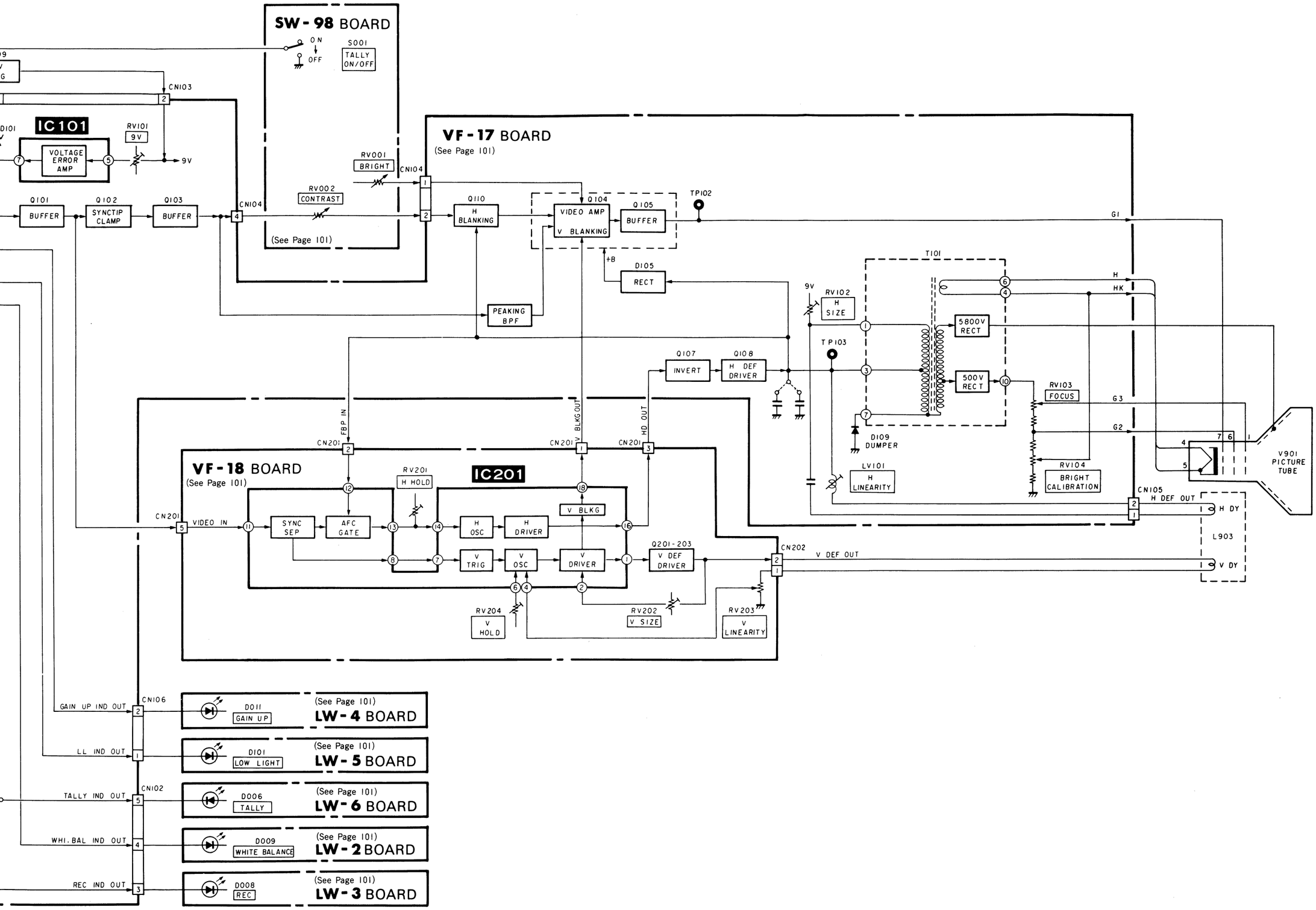



IC301
Y S/H AGC
CLP0
SHP
CLP3
SHD
SP3
SP2
SP1
CLP1
PRE BLK
CLAMP
S/H
PG CLP
AGC
AGC CLP
LPF
BLK CLP
R OUT
G OUT
B OUT
DC OUT
CS OUT
AGC CONT
GC
CS CONT
CS GAIN
CS SLICE
MIX
MIX CONT
DET OUT
IRIS OUT
CLP I
A-Vcc
Vcc (D)
LLA DRIVE
AGC OUT
WINDOW
DET LEVEL
IRIS LEVEL
IRIS DET
Q303, 304
AGC DET
LL SC
CS AGC
AGC SENS GAIN Y
IC301 (29) 0.8Vp-p
IC301 (40) 0.17Vp-p
IC301 (36) 3.8Vp-p
FL401
YH LPF
Q401
BUFFER
Q402,403
AMP
CN401
CLP2
Y-Y CONT
GM-4 BOARD IC701 (See Page 68)
CLAMP
AGC
WHITE COMPRESS
Y/I
BUFFER
BF SYNC Vcc Vcc
Q705
5V
SWD 5V (CN201 (1))
YH OUT
IC402 (22) 0.9Vp-p
IC402 (14) 0.5Vp-p
EM-3 BOARD (See Page 83)
CHECK POINT ARRAY
VAP OUT
DTL OUT
IRIS OUT
Y-Y IN
DET C
YH
G DET
AWB ADJ MODE
E-MI ADJ MODE
W401
W501
IC504 (4) 0.4Vp-p
Q553
BUFFER
IC503
1H DELAY (CCD)
CLOCK
Q550
V06
V09
V09
5V (W501)
4fsc
IC501
ENCODER
R-Y
B-Y
CS-Y
CS AGC
BURST LEVEL
LALT
4FSC
HUE
BF
Y-YH
YH
CLP
IC302
CHROMA S/H AGC
DC OUT (IC402 (39))
Q301,302
Q305, 306
LPF
LLA LED
LLA SENS GAIN C
IC402
CHROMA PROCESS
SWD 5V (CN201 (1))
DC IN (IC302 (30))
C LEVEL
R GAIN
B GAIN
B CONT
R CONT
WINDOW
VD
Q401
WINDOW + VD
G OUT
GATE DET
PED
YL MATRIX 1
YL MATRIX 2
MATRIX
R-G
B-G
R-Y
B-Y
CLP
LB
GATE
YL MIX
YL-YH OUT
YH OUT
Y-Y CONT
YL-MIX
R-Y HUE
B-Y HUE
R-Y GAIN
B-Y GAIN
R-Y OUT
B-Y OUT
C-Y CONT
OFF SET CONT
Q432,434
Q431,433
LPF
IC402 (11) 0.4Vp-p
IC201
SYNC GENERATOR
CL IN
CL OUT
4FSC
CHD
CVD
C SYNC
CBLK
CBF
CLALT
H COM OUT
PHASE COMP
DIVIDER
4FSC OUT
4FSC IN
SWD 5V (CN201 (1))
VDD
3Vp-p
3.318MHz
IC201 (25)
5Vp-p
IC201 (3)
IC201 (6)
IC201 (4)
IC201 (12)
IC201 (8)
IC302 (27) 0.3Vp-p
IC302 (29) 0.6Vp-p
IC302 (32) 0.5Vp-p
IC403
EVR
B-Y HUE
R-Y HUE
B-Y GAIN
R-Y GAIN
B GAIN
R GAIN
C LEVEL
Y-Y CONT
AGC
SENS GAIN Y
SENS GAIN C
LLA
DI
LD
CLK
VDD
Vcc
Vss
SWD 5V (CN201 (1))
CHECK POINT
TP602
HD
TP601
VD
IC101 (1/2)
AMP
IC506 (1/2)
5V REG
REF 1.5V
W502
W503
W504
W505
W506
W507
W508
W509
W510
W511
W512
W513
W514
W515
W516
W517
W518
W519
W520
W521
W522
W523
W524
W525
W526
W527
W528
W529
W530
W531
W532
W533
W534
W535
W536
W537
W538
W539
W540
W541

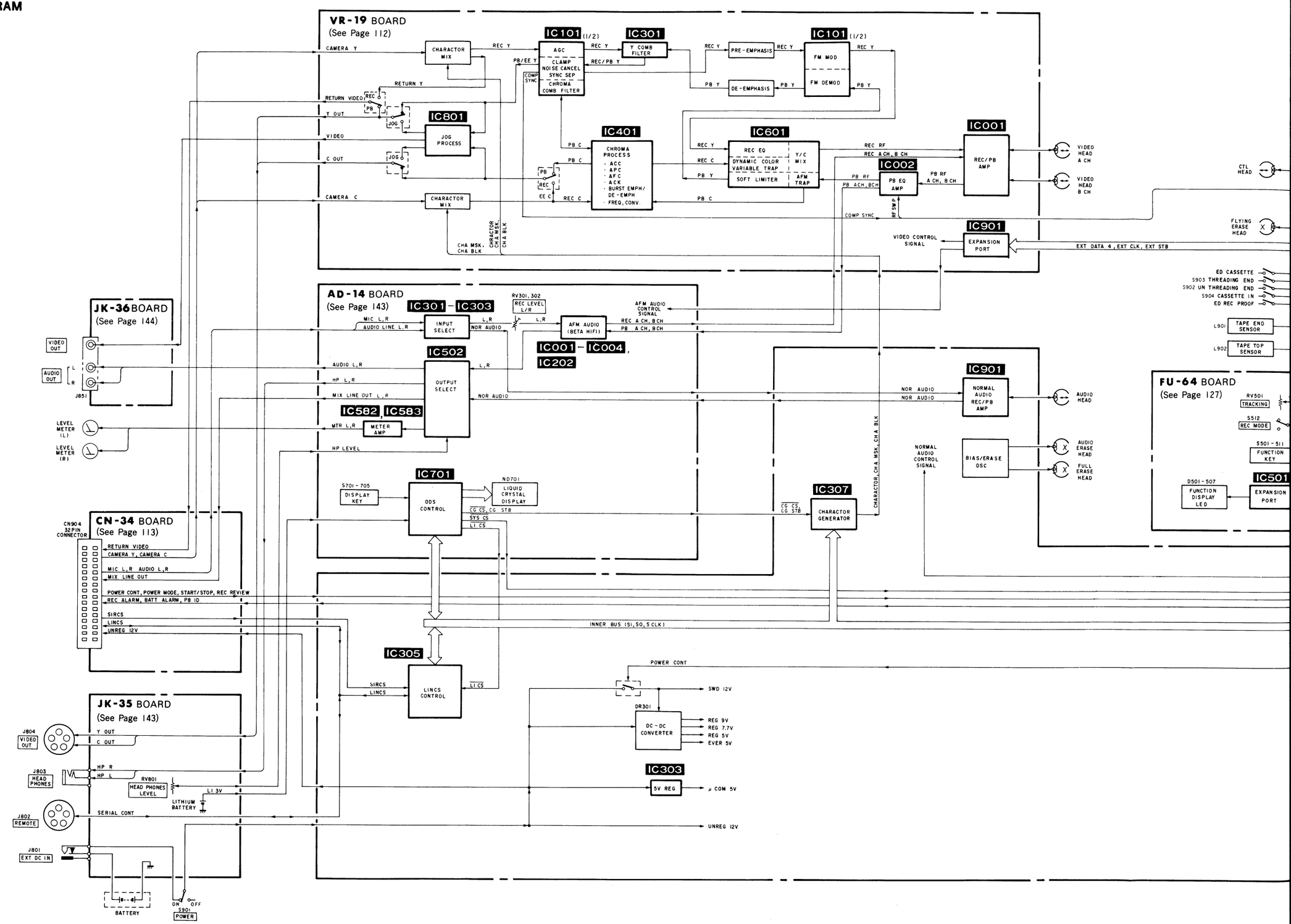

EM-3 BOARD (See Page 83)
(See Page 95)
JK-37 BOARD
EV-2 BOARD (See Page 87)
SW-85 BOARD (See Page 94)
SW-84 BOARD (See Page 93)
SW-86 BOARD (See Page 94)
(See Page 83)
DC-DC CONVERTER CD-101
IC501 ENCODER
IC502 Y/CHROMA OUTPUT
IC503
IC504 VARTICAL APERTURE COMPENSATOR
IC505 EVR
IC506 (1/2)
IC601 CAMERA SYSTEM CONTROL
IC602 MEMORY
IC603
IC101 (1/2)
CHECK POINT ARRAY
WINDOW
R-Y HUE
B-Y HUE
R-Y GAIN
B-Y GAIN
C-Y CONT
OFF SET CONT
YL-YH OUT
YH OUT
Y-YL MIX
BURST LEVEL
SYNC LEVEL
SET UP
V. APA CONT
Y LEVEL
SHP LEVEL
WHITE CLIP
BURST HUE
BURST LEVEL
IRIS CONT OUT
IRIS CLOSE SW
VTR START/STOP
IRIS CLOSE
SWD UNREG 12V
5V
REF 1.5V
SWD 5V
6.6V
15V
27V
MIC L
MIC R
L CH
R CH
MIC 9V
MIC L(X)
MIC R(X)
POWER CONT
PB ID
POWER MODE
UNREG +12V
REC REVIEW
REC ALARM
C OUT(X)
Y OUT(X)
LINCS IN/OUT
RET Y IN(X)
RET Y OUT
WB NG
LLA LED
GAIN LED
SENS POSI
EDIT + VF DISP
E-SHUTT SW
CAM ON
WB POSI
SENS POSITION
VTR START /STOP
EDIT SEARCH +
EDIT SEARCH −
VF DISPLAY SELECT
REC REVIEW
E-SHUTTER
POWER
STABY
SAVE
CAME OFF
ONE PUSH AWB
ONE PUSH
WHITE BALANCE
DD CON ON
EVER 5V

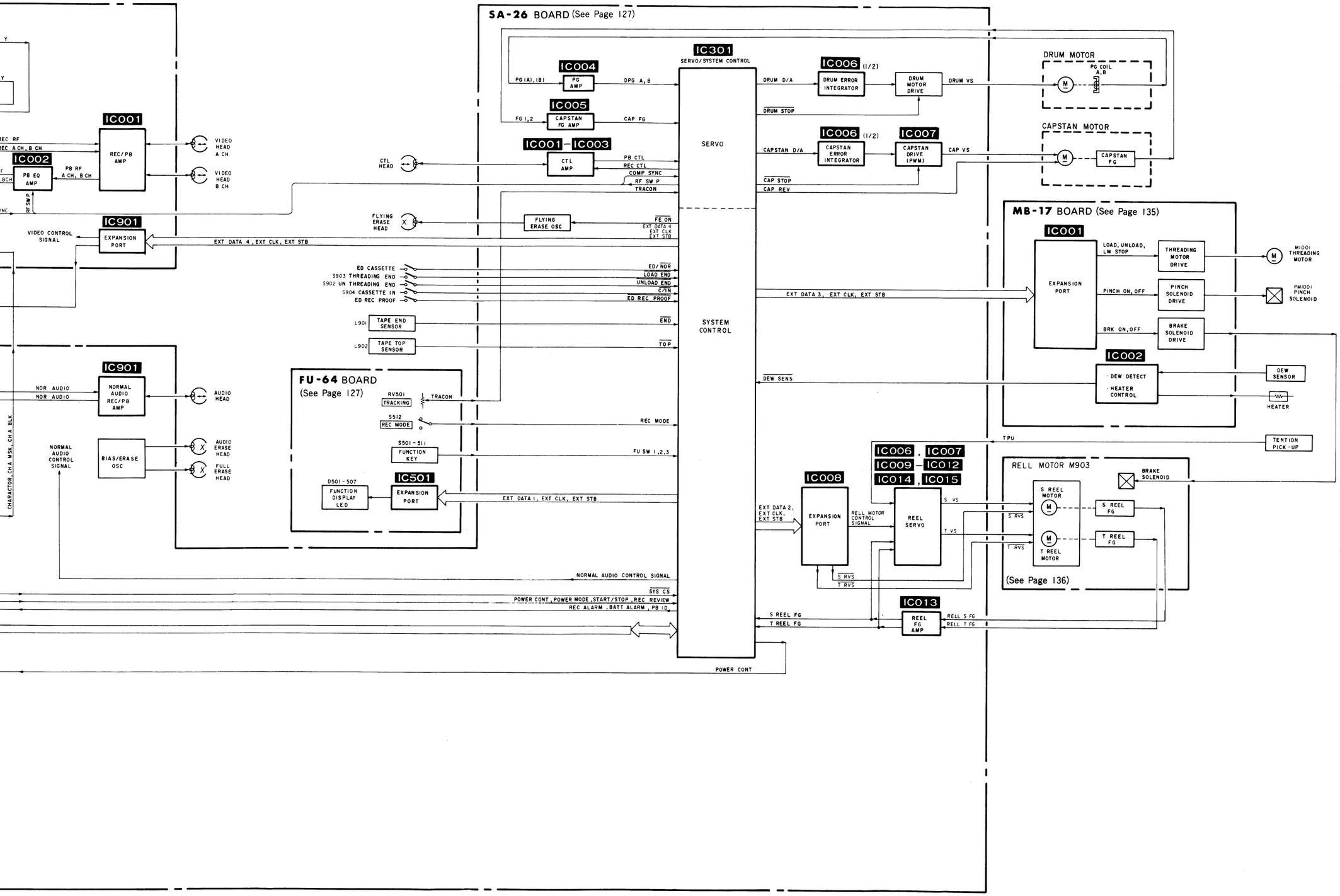
3-4. EVF BLOCK DIAGRAM



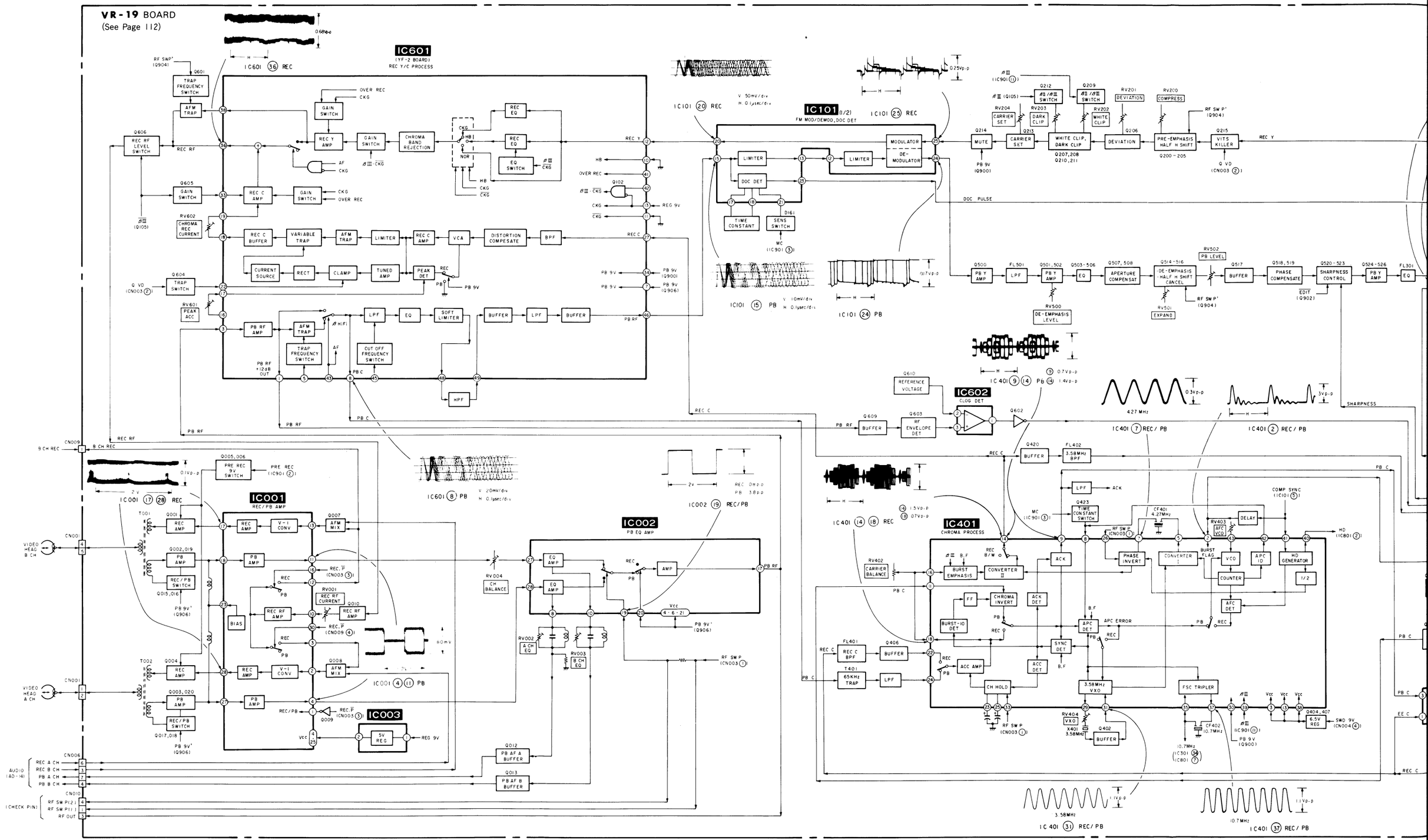

SW-98 BOARD
S001
TALLY ON/OFF
ON
OFF
CN103
IC101
RV101
9V
VOLTAGE ERROR AMP
9V
RV001
BRIGHT
RV002
CONTRAST
CN104
(See Page 101)
VF-17 BOARD
(See Page 101)
Q101
BUFFER
Q102
SYNCTIP CLAMP
Q103
BUFFER
Q110
H BLANKING
Q104
VIDEO AMP
V BLANKING
Q105
BUFFER
TP102
G1
+B
D105
RECT
PEAKING BPF
T101
9V
RV102
H SIZE
TP103
Q107
INVERT
Q108
H DEF DRIVER
H
HK
5800V RECT
500V RECT
D109
DUMPER
LV101
H LINEARITY
RV103
FOCUS
RV104
BRIGHT CALIBRATION
G3
G2
V901
PICTURE TUBE
CN105
H DEF OUT
H DY
L903
V DY
CN202
V DEF OUT
Q201-203
V DEF DRIVER
VF-18 BOARD
(See Page 101)
IC201
CN201
FBP IN
V BLKG OUT
HD OUT
VIDEO IN
SYNC SEP
AFC GATE
H OSC
H DRIVER
V BLKG
V TRIG
V OSC
V DRIVER
RV201
H HOLD
RV204
V HOLD
RV202
V SIZE
RV203
V LINEARITY
CN106
GAIN UP IND OUT
D011
GAIN UP
LW-4 BOARD
LL IND OUT
D101
LOW LIGHT
LW-5 BOARD
CN102
TALLY IND OUT
D006
TALLY
LW-6 BOARD
WHI.BAL IND OUT
D009
WHITE BALANCE
LW-2 BOARD
REC IND OUT
D008
REC
LW-3 BOARD
(See Page 101)

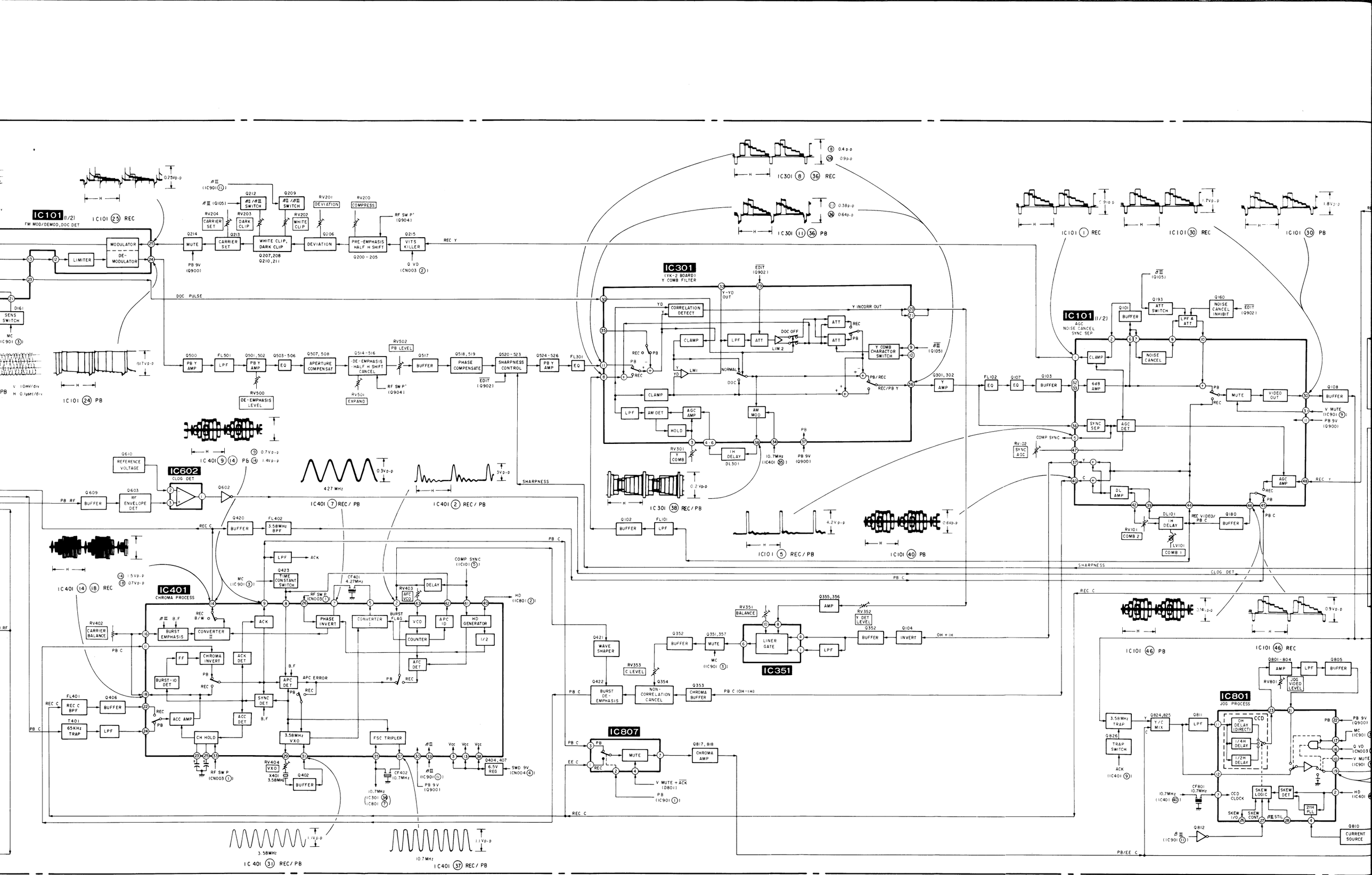
3-5. VCR BLOCK OVERALL BLOCK DIAGRAM

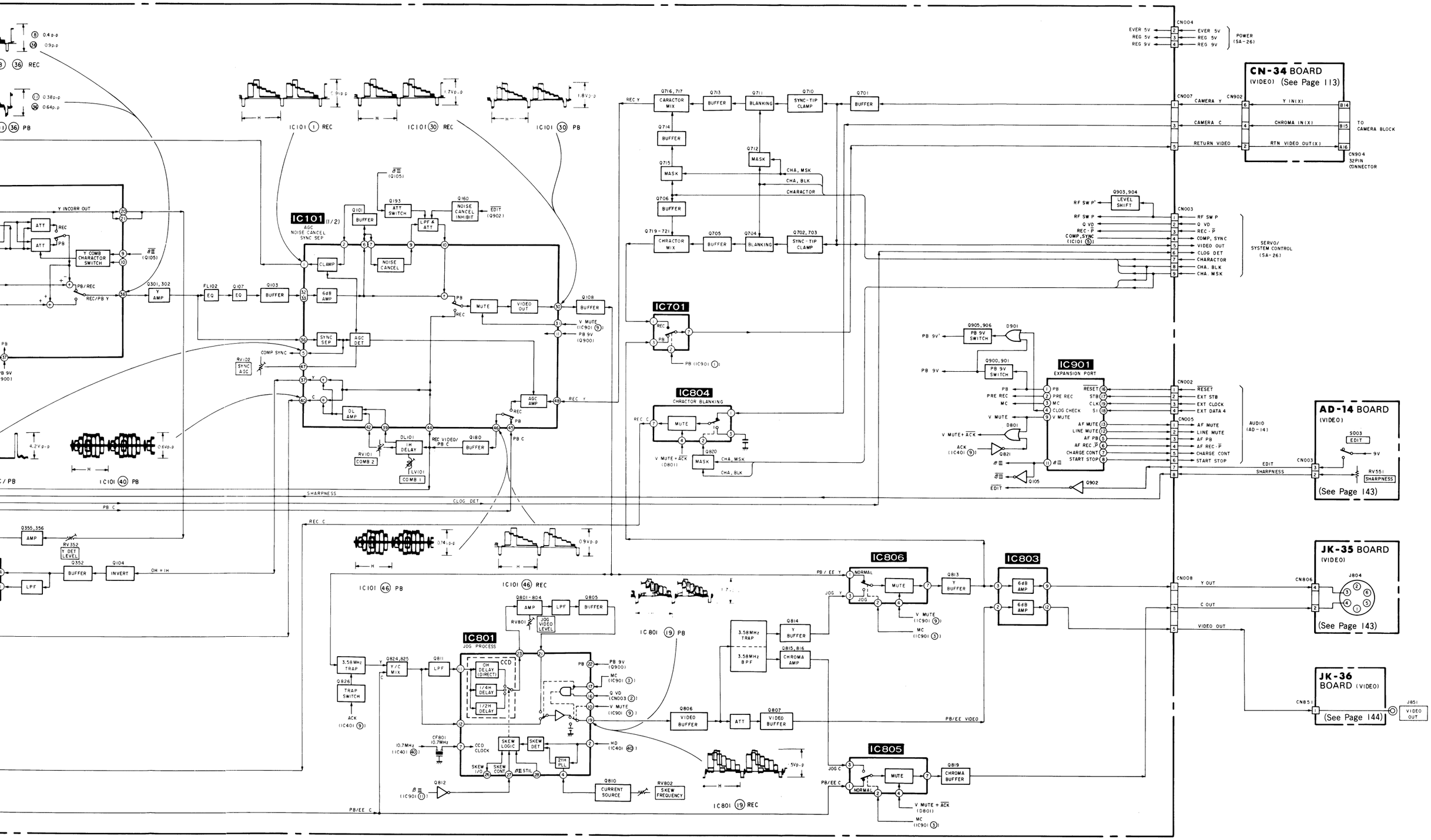



SA-26 BOARD (See Page 127)
IC301
SERVO/SYSTEM CONTROL
SERVO
SYSTEM CONTROL
IC004
PG AMP
PG(A),(B)
DPG A,B
IC005
CAPSTAN FG AMP
FG 1,2
CAP FG
IC001-IC003
CTL AMP
CTL HEAD
PB CTL
REC CTL
COMP SYNC
RF SW P
TRACON
IC006 (1/2)
DRUM ERROR INTEGRATOR
DRUM D/A
DRUM MOTOR DRIVE
DRUM VS
DRUM STOP
DRUM MOTOR
PG COIL A,B
IC006 (1/2)
CAPSTAN ERROR INTEGRATOR
CAPSTAN D/A
IC007
CAPSTAN DRIVE (PWM)
CAP VS
CAP STOP
CAP REV
CAPSTAN MOTOR
CAPSTAN FG
IC001
REC/PB AMP
VIDEO HEAD A CH
VIDEO HEAD B CH
REC RF
REC A CH, B CH
IC002
PB EQ AMP
PB RF A CH, B CH
RF SW P
FLYING ERASE HEAD
FLYING ERASE OSC
FE ON
EXT DATA 4
EXT CLK
EXT STB
IC901
EXPANSION PORT
VIDEO CONTROL SIGNAL
EXT DATA 4, EXT CLK, EXT STB
ED CASSETTE
S903 THREADING END
S902 UN THREADING END
S904 CASSETTE IN
ED REC PROOF
ED/NOR
LOAD END
UNLOAD END
CIN
ED REC PROOF
L901 TAPE END SENSOR
END
L902 TAPE TOP SENSOR
TOP
MB-17 BOARD (See Page 135)
IC001
EXPANSION PORT
LOAD, UNLOAD, LM STOP
THREADING MOTOR DRIVE
M1001 THREADING MOTOR
PINCH ON, OFF
PINCH SOLENOID DRIVE
PM1001 PINCH SOLENOID
BRK ON, OFF
BRAKE SOLENOID DRIVE
IC002
DEW DETECT
HEATER CONTROL
DEW SENS
DEW SENSOR
HEATER
TPU
TENTION PICK-UP
BRAKE SOLENOID
EXT DATA 3, EXT CLK, EXT STB
FU-64 BOARD
(See Page 127)
RV501 TRACKING
TRACON
S512 REC MODE
REC MODE
S501-511 FUNCTION KEY
FU SW 1,2,3
D501-507 FUNCTION DISPLAY LED
IC501
EXPANSION PORT
EXT DATA 1, EXT CLK, EXT STB
IC901
NORMAL AUDIO REC/PB AMP
NOR AUDIO
NOR AUDIO
AUDIO HEAD
BIAS/ERASE OSC
AUDIO ERASE HEAD
FULL ERASE HEAD
NORMAL AUDIO CONTROL SIGNAL
CHARACTOR, CH A MSK, CH A BLK
IC006, IC007
IC009-IC012
IC014, IC015
RELL MOTOR M903
S REEL MOTOR
T REEL MOTOR
S REEL FG
T REEL FG
S VS
S RVS
T VS
T RVS
(See Page 136)
IC008
EXPANSION PORT
EXT DATA 2, EXT CLK, EXT STB
RELL MOTOR CONTROL SIGNAL
REEL SERVO
IC013
REEL FG AMP
S REEL FG
T REEL FG
RELL S FG
RELL T FG
NORMAL AUDIO CONTROL SIGNAL
SYS CS
POWER CONT, POWER MODE, START/STOP, REC REVIEW
REC ALARM, BATT ALARM, PB ID
POWER CONT

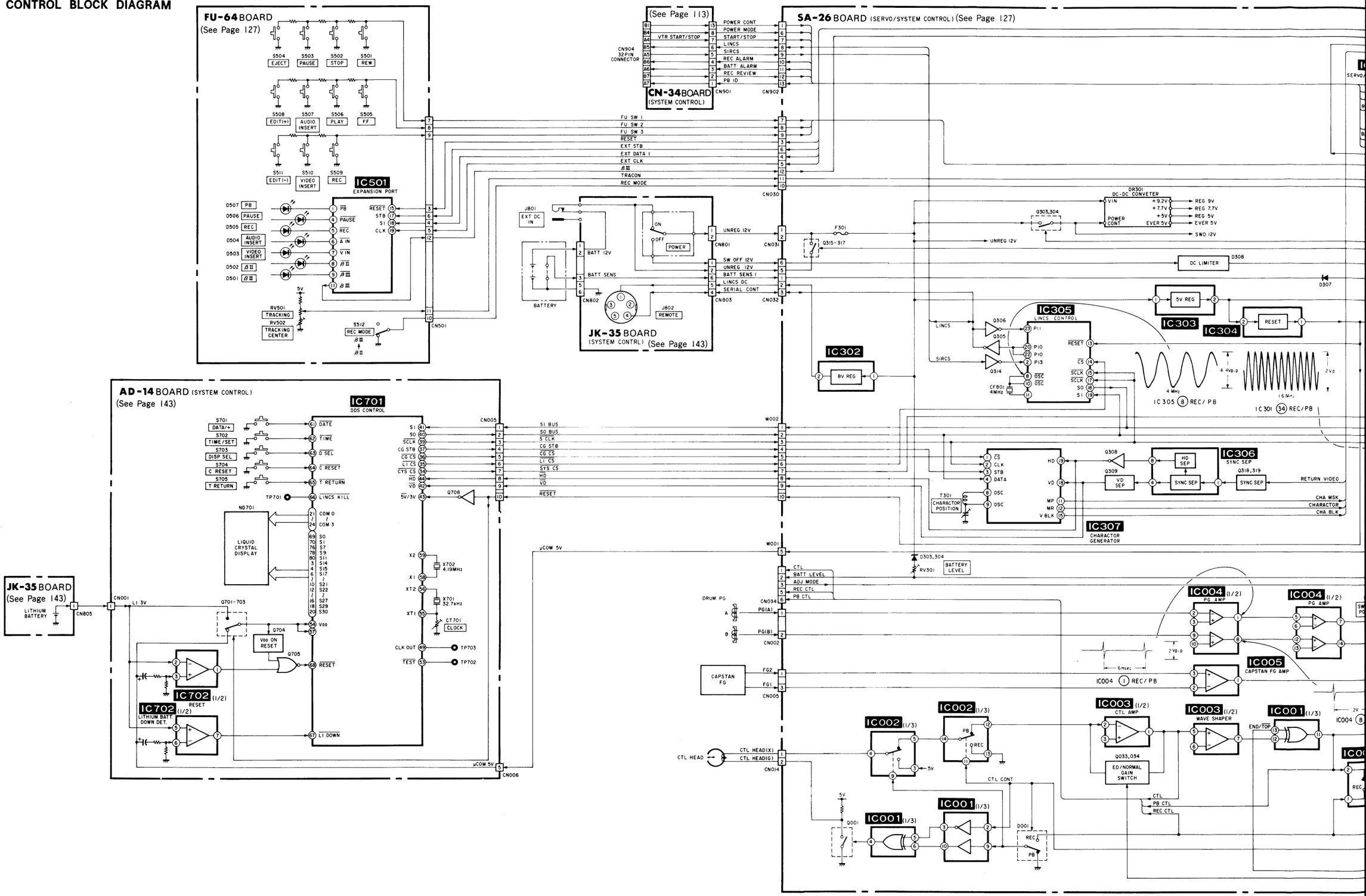
3-6. VIDEO BLOCK DIAGRAM

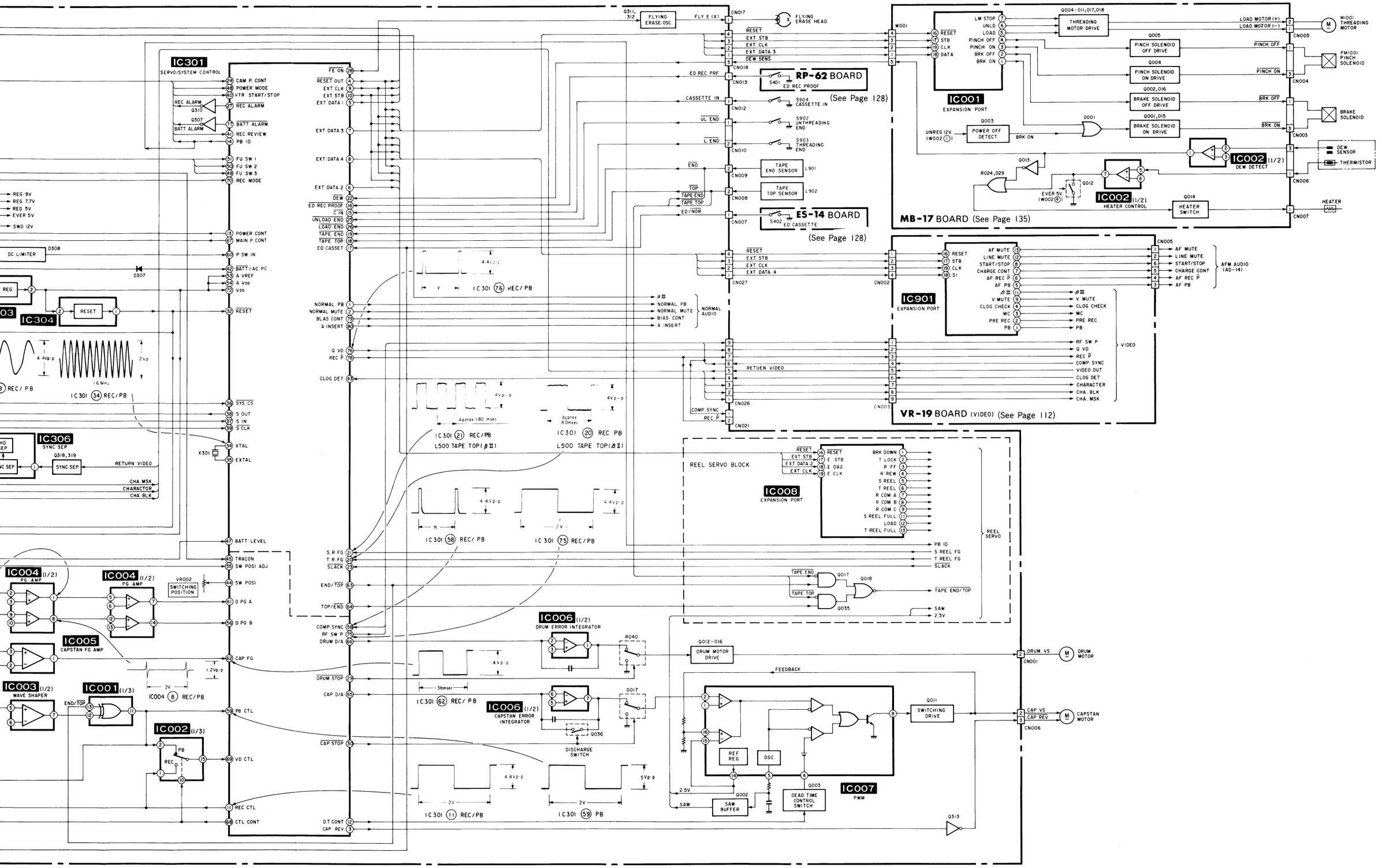



IC101 (1/2)
FM MOD/DEMOD, DOC DET
MODULATOR
DE-MODULATOR
LIMITER
SENS SWITCH
DOC PULSE
MUTE
CARRIER SET
DARK CLIP
WHITE CLIP
WHITE CLIP, DARK CLIP
Q207,208
Q210,211
DEVIATION
PRE-EMPHASIS HALF H SHIFT
Q200 - 205
VITS KILLER
COMPRESS
RF SW P' (Q904)
REC Y
PB 9V (Q900)
Q V D (CN003 2)
PB Y AMP
LPF
PB Y AMP
EQ
APERTURE COMPENSAT
DE-EMPHASIS HALF H SHIFT CANCEL
PB LEVEL
BUFFER
PHASE COMPENSATE
SHARPNESS CONTROL
PB Y AMP
EQ
DE-EMPHASIS LEVEL
EXPAND
IC301
(YK-2 BOARD)
Y COMB FILTER
Y-YD OUT
CORRELATION DETECT
Y INCORR OUT
CLAMP
LPF
ATT
DOC OFF
LIM 2
Y COMB CHARACTOR SWITCH
REC/PB Y
Q301, 302
Y AMP
AM DET
AGC AMP
AM MOD
HOLD
RV301 Y COMB
1H DELAY
DL301
10.7MHz (IC401 55)
PB 9V (Q900)
IC301 (38) REC/PB
IC101 (5) REC/PB
IC101 (40) PB
IC101 (1) REC
IC101 (30) REC
IC101 (30) PB
IC101 (1/2)
AGC NOISE CANCEL SYNC SEP
NOISE CANCEL INHIBIT
NOISE CANCEL
6dB AMP
SYNC SEP
AGC DET
COMP SYNC
RV102 SYNC AGC
VIDEO OUT
V MUTE (IC901 9)
PB 9V (Q900)
DL AMP
DL101 1H DELAY
RV101 COMB 2
LV101 COMB 1
REC VIDEO/PB C
Q180
IC602
CLOG DET
REFERENCE VOLTAGE
RF ENVELOPE DET
427 MHz
IC401 (7) REC/PB
IC401 (2) REC/PB
IC401 (9)(14) PB (4) (18)
IC401 (14) (18) REC
IC401
CHROMA PROCESS
TIME CONSTANT SWITCH
CF401 4.27MHz
RF SW P (CN003 1)
PHASE INVERT
CONVERTER I
CONVERTER II
BURST EMPHASIS
BURST FLAG
VCO
APC ID
HD GENERATOR
COUNTER
1/2
AFC VCO
AFC DET
CARRIER BALANCE
CHROMA INVERT
ACK DET
BURST-ID DET
APC DET
APC ERROR
SYNC DET
ACC AMP
ACC DET
CH HOLD
3.58MHz VXO
RV404 VXO
X401 3.58MHz
FSC TRIPLER
CF402 10.7MHz
6.5V REG
SWD 9V (CN004 4)
HD (IC801 2)
COMP SYNC (IC101 5)
REC B/W
REC C BPF
65KHz TRAP
IC401 (4) 1.5Vp-p
(18) 0.7Vp-p
IC401 (31) REC/PB
IC401 (37) REC/PB
WAVE SHAPER
BURST DE-EMPHASIS
NON-CORRELATION CANCEL
CHROMA BUFFER
PB C (0H-1H)
RV351 BALANCE
LINER GATE
IC351
RV352 Y DET LEVEL
RV353 C LEVEL
IC807
MUTE
CHROMA AMP
V MUTE + ACK (Q801)
IC101 (46) PB
IC101 (46) REC
IC801
JOG PROCESS
JOG VIDEO LEVEL
3.58MHz TRAP
TRAP SWITCH
Y/C MIX
CCD
OH DELAY (DIRECT)
1/4H DELAY
1/2H DELAY
CCD CLOCK
SKEW LOGIC
SKEW DET
SKEW CONT
SKEW I/O
2/1H PLL
CFB01 10.7MHz
Q812
Q810 CURRENT SOURCE
PB/EE C

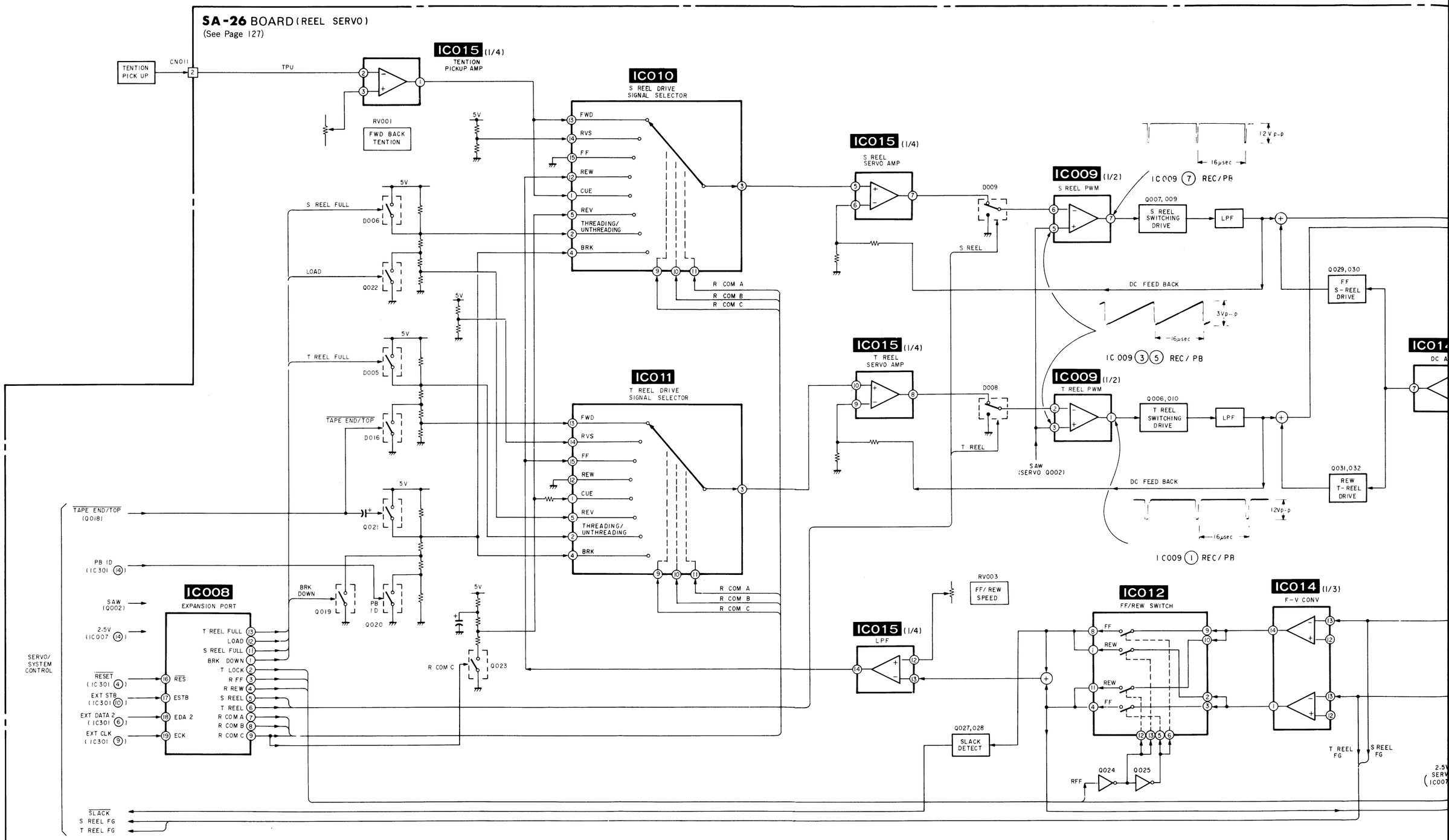

IC101 (1) REC
IC101 (30) REC
IC101 (30) PB
IC101 (40) PB
IC101 (46) PB
IC101 (46) REC
IC801 (19) PB
IC801 (19) REC
IC101 (1/2)
AGC NOISE CANCEL SYNC SEP
IC701
IC804
CHRACTOR BLANKING
IC801
JOG PROCESS
IC806
IC803
IC805
IC901
EXPANSION PORT
CN004
POWER (SA-26)
CN-34 BOARD (VIDEO) (See Page 113)
CN007
CN902
CAMERA Y
CAMERA C
RETURN VIDEO
Y IN(X)
CHROMA IN(X)
RTN VIDEO OUT(X)
TO CAMERA BLOCK
CN904 32PIN CONNECTOR
CN003
SERVO/ SYSTEM CONTROL (SA-26)
CN002
AUDIO (AD-14)
CN005
AD-14 BOARD (VIDEO)
SW03 EDIT
RV551 SHARPNESS
(See Page 143)
JK-35 BOARD (VIDEO)
J804
(See Page 143)
JK-36 BOARD (VIDEO)
CN851
J851 VIDEO OUT
(See Page 144)
CN008
Y OUT
C OUT
VIDEO OUT
Y INCORR OUT
REC Y
REC C
PB C
PB/EE Y
PB/EE C
PB/EE VIDEO
CLOG DET
SHARPNESS
CHA. MSK
CHA. BLK
CHARACTOR
V MUTE
MC
Q. VD
HD
PB 9V
RF SW P
Q VD
REC · P
COMP, SYNC
VIDEO OUT
CLOG DET
CHARACTOR
CHA. BLK
CHA. MSK
RESET
EXT STB
EXT CLOCK
EXT DATA 4
AF MUTE
LINE MUTE
AF PB
AF REC · P
CHARGE CONT
START STOP
EDIT
0.4 p-p
0.9p-p
0.38p-p
0.64p-p
4.2Vp-p
0.6Vp-p
0.9Vp-p
0.74p-p
0.5Vp-p
1.7Vp-p
1.8Vp-p

3-7. SERVO, SYSTEM CONTROL BLOCK DIAGRAM




IC301
SERVO/SYSTEM CONTROL
CAM P. CONT
POWER MODE
VTR START/STOP
REC ALARM
BATT ALARM
REC REVIEW
PB ID
FU SW 1
FU SW 2
FU SW 3
REC MODE
POWER CONT
MAIN P. CONT
P SW IN
BATT/AC PC
A VREF
A Vdd
Vdd
RESET
SYS CS
S OUT
S IN
S CLK
XTAL
EXTAL
BATT LEVEL
TRACON
SW POSI ADJ
SW POSI
D PG A
D PG B
CAP FG
PB CTL
VD CTL
REC CTL
CTL CONT
FE ON
RESET OUT
EXT CLK
EXT STB
EXT DATA 1
EXT DATA 3
EXT DATA 4
EXT DATA 2
DEW
ED REC PROOF
C IN
UNLOAD END
LOAD END
TAPE END
TAPE TOP
ED CASSET
NORMAL PB
NORMAL MUTE
BIAS CONT
A INSERT
Q VD
REC P
CLOG DET
COMP SYNC
RF SW P
DRUM D/A
DRUM STOP
CAP D/A
CAP STOP
D.T CONT
CAP REV
S.R FG
T.R FG
SLACK
END/TOP
TOP/END
REG 9V
REG 7.7V
REG 5V
EVER 5V
SWD 12V
DC LIMITER
D308
D307
IC304
RESET
REC/PB
IC301 (34) REC/PB
IC306
SYNC SEP
Q318,319
SYNC SEP
RETURN VIDEO
CHA MSK
CHARACTOR
CHA BLK
X301
IC004 (1/2)
PG AMP
IC004 (1/2)
PG AMP
VR002
SWITCHING POSITION
IC005
CAPSTAN FG AMP
IC003 (1/2)
WAVE SHAPER
IC001 (1/3)
IC004 (8) REC/PB
IC002 (1/3)
PB
REC
IC301 (76) REC/PB
IC301 (21) REC/PB
L500 TAPE TOP(βII)
IC301 (20) REC PB
L500 TAPE TOP(βII)
IC301 (58) REC/PB
IC301 (75) REC/PB
IC301 (11) REC/PB
IC301 (59) PB
Q311, 312
FLYING ERASE OSC
FLY E (X)
FLYING ERASE HEAD
CN017
CN018
CN013
ED REC PRF
S401
RP-62 BOARD
ED REC PROOF
(See Page 128)
CASSETTE IN
S904
CASSETTE IN
CN012
UL END
S902
UNTHREADING END
L END
S903
THREADING END
CN010
END
TAPE END SENSOR
L901
CN009
TOP
TAPE TOP SENSOR
L902
CN008
ED/NOR
S402
ES-14 BOARD
ED CASSETTE
(See Page 128)
CN007
CN027
CN026
CN021
CN002
CN003
W001
IC001
EXPANSION PORT
LM STOP
UNLD
LOAD
PINCH OFF
PINCH ON
BRK OFF
BRK ON
THREADING MOTOR DRIVE
Q004-011,017,018
Q005
PINCH SOLENOID OFF DRIVE
Q004
PINCH SOLENOID ON DRIVE
Q002,016
BRAKE SOLENOID OFF DRIVE
Q001,015
BRAKE SOLENOID ON DRIVE
LOAD MOTOR (+)
LOAD MOTOR (−)
M1001 THREADING MOTOR
PINCH OFF
PINCH ON
PM1001 PINCH SOLENOID
BRK OFF
BRK ON
BRAKE SOLENOID
CN005
CN004
CN003
UNREG 12V (W002 1)
Q003
POWER OFF DETECT
D001
IC002 (1/2)
DEW DETECT
DEW SENSOR
THERMISTOR
CN006
R024,029
Q013
Q012
EVER 5V (W002 4)
IC002 (1/2)
HEATER CONTROL
Q014
HEATER SWITCH
HEATER
CN007
MB-17 BOARD (See Page 135)
IC901
EXPANSION PORT
RESET
STB
CLK
S1
AF MUTE
LINE MUTE
START/STOP
CHARGE CONT
AF REC P
AF PB
βIII
V MUTE
CLOG CHECK
MC
PRE REC
PB
CN005
AFM AUDIO (AD-14)
RF SW P
Q VD
REC P
COMP SYNC
VIDEO OUT
CLOG DET
CHARACTER
CHA. BLK
CHA. MSK
VIDEO
VR-19 BOARD (VIDEO) (See Page 112)
REEL SERVO BLOCK
IC008
EXPANSION PORT
E STB
E DA2
E CLK
BRK DOWN
T LOCK
R FF
R REW
S REEL
T REEL
R COM A
R COM B
R COM C
S REEL FULL
LOAD
T REEL FULL
REEL SERVO
PB ID
S REEL FG
T REEL FG
SLACK
TAPE END
TAPE TOP
Q017
Q018
Q035
TAPE END/TOP
SAW
2.5V
IC006 (1/2)
DRUM ERROR INTEGRATOR
R040
Q012-016
DRUM MOTOR DRIVE
FEEDBACK
DRUM VS
CN001
DRUM MOTOR
IC006 (1/2)
CAPSTAN ERROR INTEGRATOR
D017
Q036
DISCHARGE SWITCH
REF REG
OSC
IC007
PWM
Q003
DEAD TIME CONTROL SWITCH
Q002
SAW BUFFER
Q011
SWITCHING DRIVE
CAP VS
CAP REV
CN006
CAPSTAN MOTOR
Q313

3-8. REEL SERVO BLOCK DIAGRAM



IC010
S REEL DRIVE SIGNAL SELECTOR
FWD
RVS
FF
REW
CUE
REV
THREADING/ UNTHREADING
BRK
R COM A
R COM B
R COM C

IC011
T REEL DRIVE SIGNAL SELECTOR
FWD
RVS
FF
REW
CUE
REV
THREADING/ UNTHREADING
BRK
R COM A
R COM B
R COM C

IC015 (1/4)
S REEL SERVO AMP

IC015 (1/4)
T REEL SERVO AMP

D009
S REEL

D008
T REEL

IC009 (1/2)
S REEL PWM

IC009 (1/2)
T REEL PWM

12 V p-p
16μsec
IC009 (7) REC/PB

3Vp-p
16μsec
IC009 (3) (5) REC/PB

12Vp-p
16μsec
IC009 (1) REC/PB

Q007, 009
S REEL SWITCHING DRIVE

Q006, 010
T REEL SWITCHING DRIVE

LPF

SAW (SERVO Q002)

DC FEED BACK

Q029, 030
FF S-REEL DRIVE

Q031, 032
REW T-REEL DRIVE

IC014 (1/3)
DC AMP

IC014 (1/3)
DC AMP

R083
CURRENT DETECT

T LOCK
R REW
R FF
Q008
Q005
Q004

CN004
S VS
T VS
R GND
T LOCK
T RVS
S RVS
CN002

REEL MOTOR M903
(See Page 136)
S REEL MOTOR
T REEL MOTOR

CN003
REEL S FG
REEL T FG
CN001
S-REEL FG
T-REEL FG

RV003
FF/REW SPEED

IC015 (1/4)
LPF

IC012
FF/REW SWITCH
FF
REW
REW
FF

IC014 (1/3)
F-V CONV

IC013
FG AMP

Q027, 028
SLACK DETECT

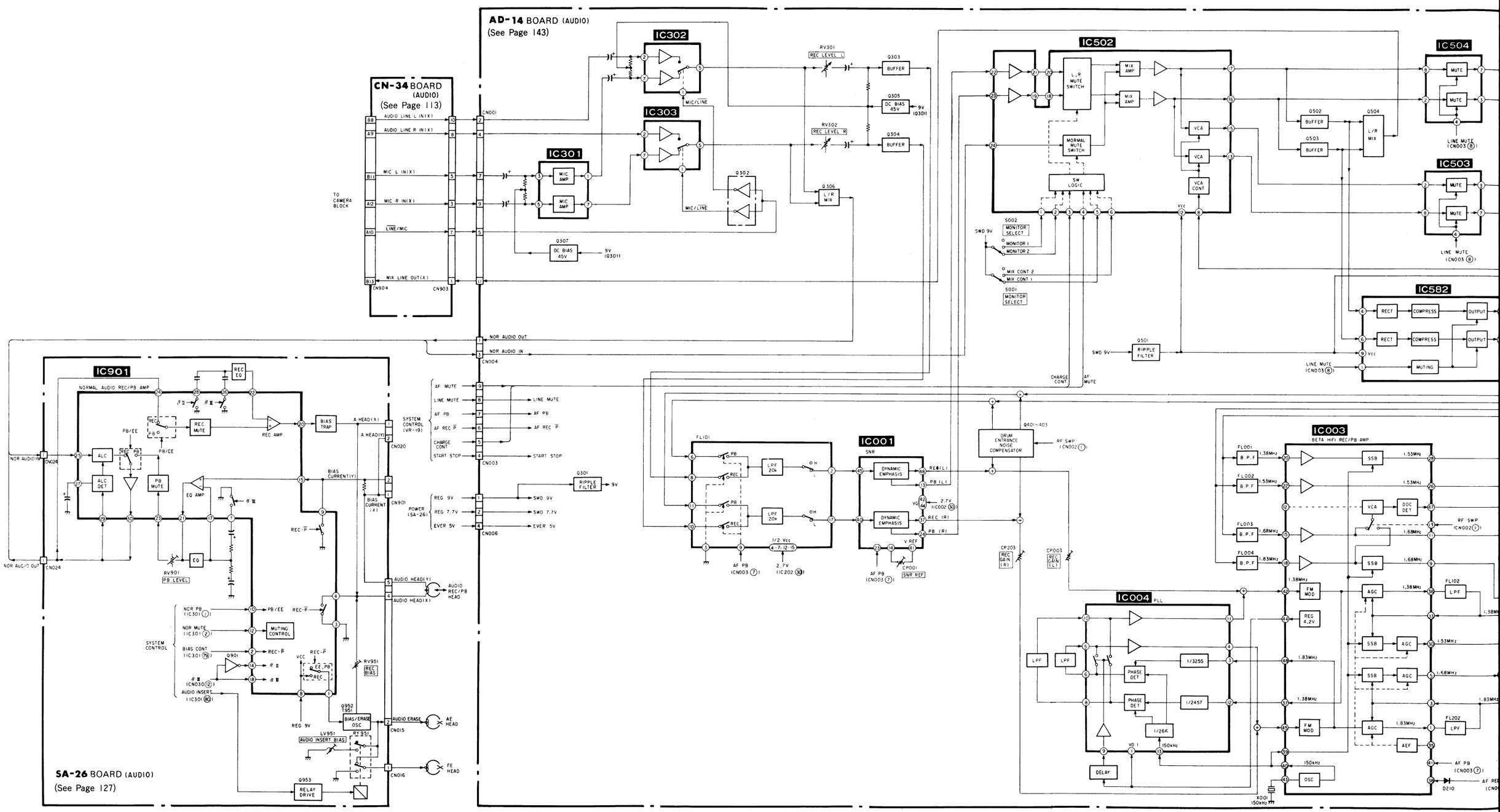
Q024
Q025
RFF

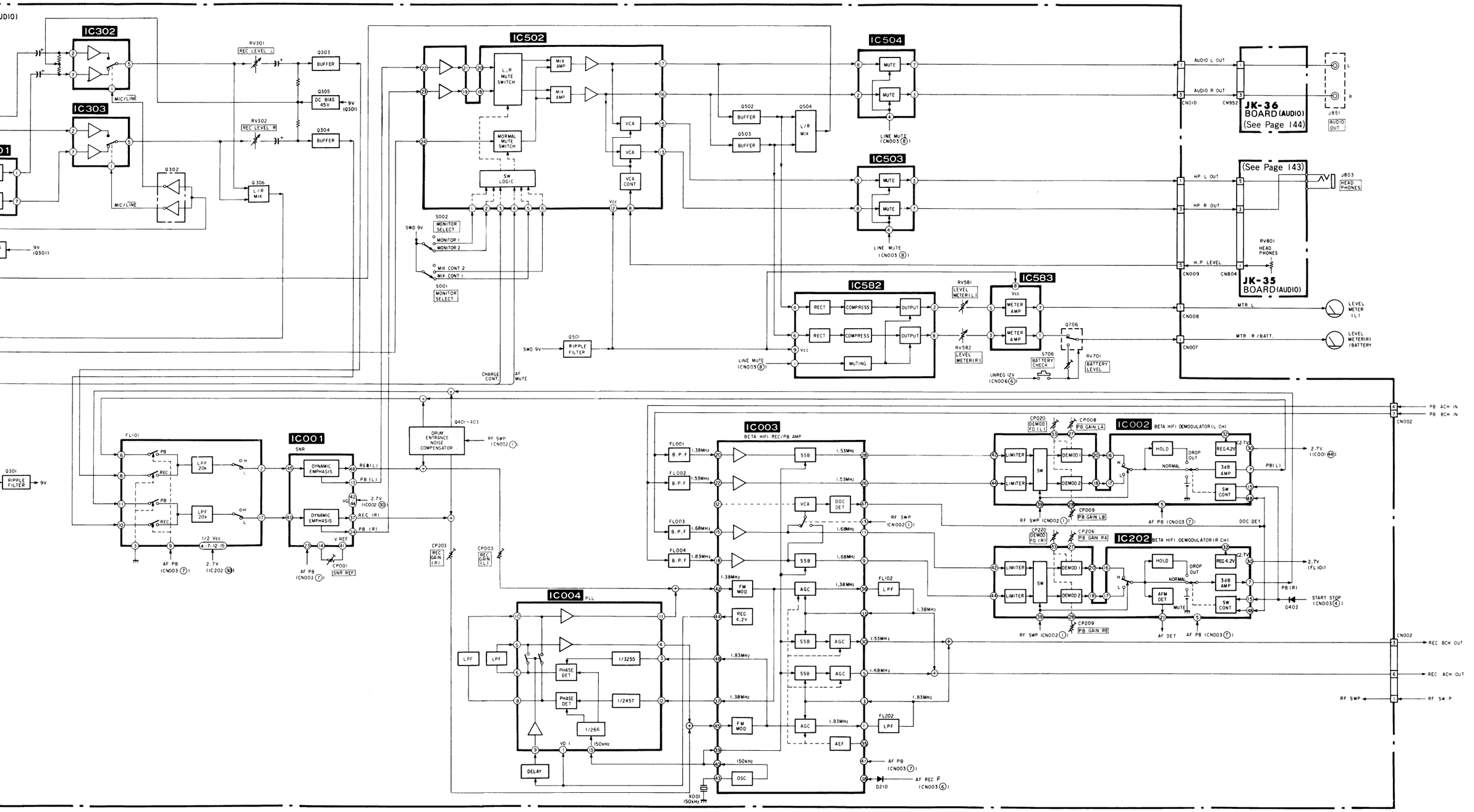
T REEL FG
S REEL FG

2.5V SERVO (IC007 (14))
Q026
DC BIAS 2V

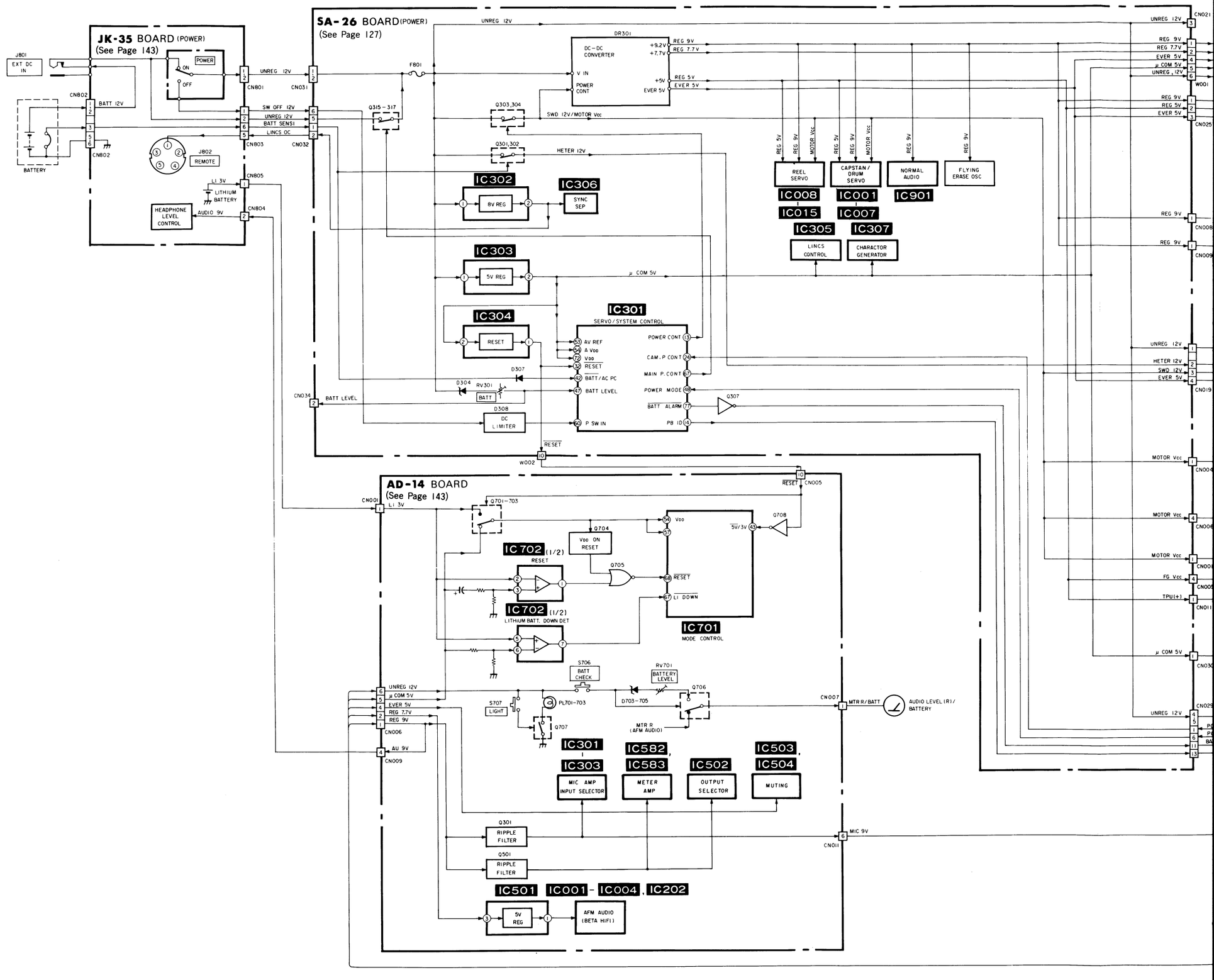
F-V OUT
CN034

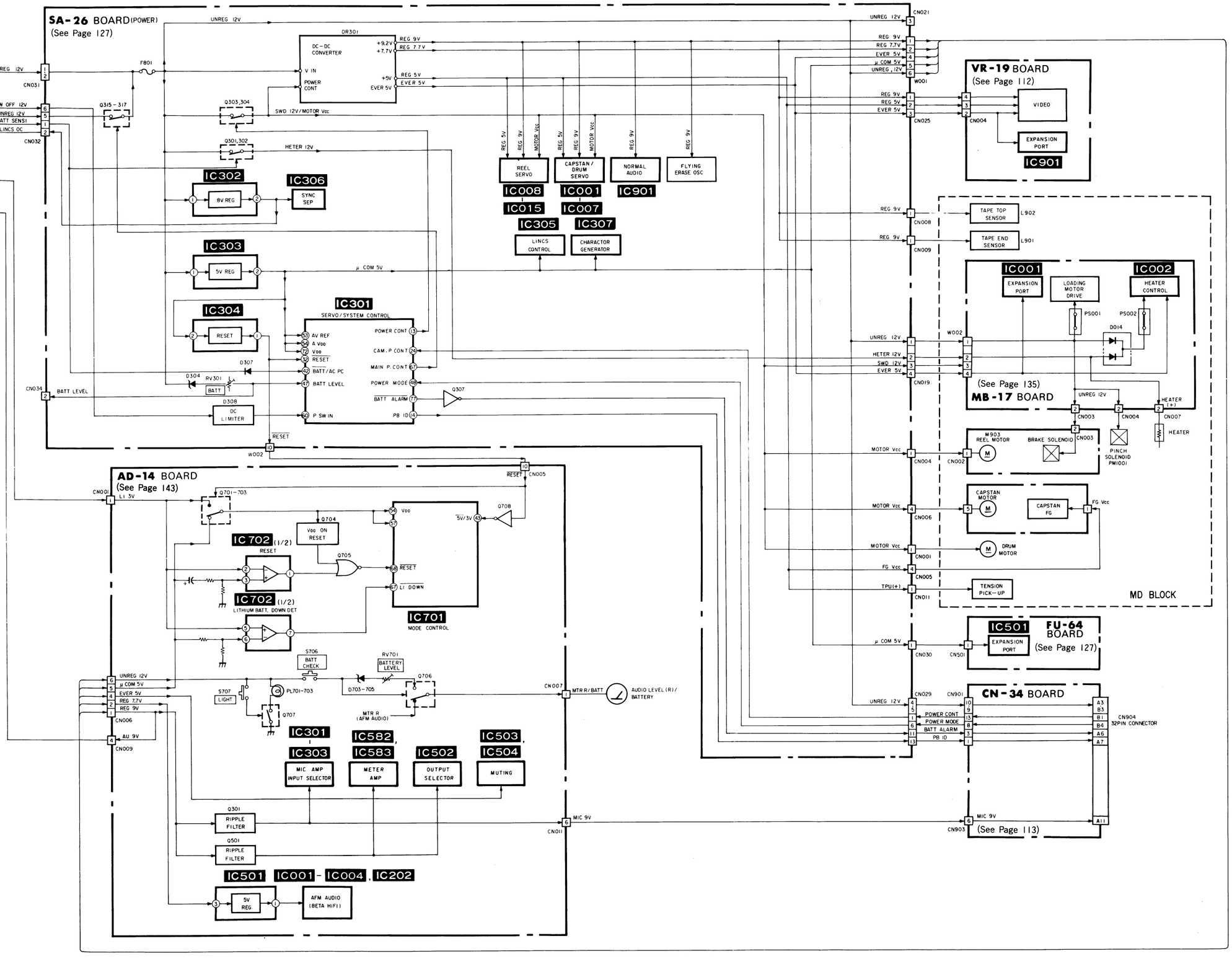
3-9. AUDIO BLOCK DIAGRAM




IC302
IC303
IC001
SNR
IC002 BETA HIFI DEMODULATOR(L CH)
IC202 BETA HIFI DEMODULATOR(R CH)
IC003
BETA HIFI REC/PB AMP
IC004 PLL
IC502
IC503
IC504
IC582
IC583
RV301 REC LEVEL L
RV302 REC LEVEL R
Q303 BUFFER
Q304 BUFFER
Q305 DC BIAS 45V
Q306 L/R MIX
Q302
MIC/LINE
Q502 BUFFER
Q503 BUFFER
Q504 L/R MIX
L,R MUTE SWITCH
MIX AMP
MORMAL MUTE SWITCH
SW LOGIC
VCA
VCA CONT
MUTE
LINE MUTE (CN003 8)
S002 MONITOR SELECT
MONITOR 1
MONITOR 2
MIX CONT 2
MIX CONT 1
S001 MONITOR SELECT
SWD 9V
Q501 RIPPLE FILTER
CHARGE CONT
AF MUTE
RECT
COMPRESS
OUTPUT
MUTING
RV581 LEVEL METER(L)
RV582 LEVEL METER(R)
METER AMP
Q706
S706 BATTERY CHECK
RV701 BATTERY LEVEL
UNREG 12V (CN006 5)
AUDIO L OUT
AUDIO R OUT
CN010
CN952
JK-36 BOARD (AUDIO)
(See Page 144)
J851 AUDIO OUT
(See Page 143)
J803 HEAD PHONES
HP L OUT
HP R OUT
H.P LEVEL
RV801 HEAD PHONES
CN009
CN804
JK-35 BOARD(AUDIO)
MTR L
MTR R/BATT.
CN008
CN007
LEVEL METER (L)
LEVEL METER(R) /BATTERY
Q301 RIPPLE FILTER
9V (Q301)
FL101
PB
REC
LPF 20k
OH
1/2 Vcc (+7.12.15)
AF PB (CN003 7)
2.7V (IC202 33)
Q401~403 DRUM ENTRANCE NOISE COMPENSATOR
RF SWP (CN002 1)
REC(L)
PB(L)
REC(R)
PB(R)
V REF
CP001 SNR REF
CP203 REC GAIN (R)
CP003 REC GAIN (L)
FL001 B.P.F 1.38MHz
FL002 B.P.F 1.53MHz
FL003 B.P.F 1.68MHz
FL004 B.P.F 1.83MHz
FM MOD
REG 4.2V
SSB
AGC
DOC DET
AEF
OSC
X001 150kHz
FL102 LPF
FL202 LPF
1.38MHz
1.53MHz
1.68MHz
1.83MHz
150kHz
LPF
PHASE DET
1/3255
1/2457
1/266
DELAY
CP020 DEMOD FO (L)
CP008 PB GAIN LA
CP009 PB GAIN LB
CP220 DEMOD FO (R)
CP206 PB GAIN RA
CP209 PB GAIN RB
LIMITER
SW
DEMOD1
DEMOD2
HOLD
DROP OUT
NORMAL
3dB AMP
SW CONT
AFM DET
MUTE
2.7V (IC001 44)
2.7V (FL101)
PB(L)
PB(R)
DOC DET
AF DET
AF PB (CN003 7)
RF SWP (CN002 1)
START STOP (CN003 4)
D402
D210
AF REC F (CN003 6)
CN002
PB ACH IN
PB BCH IN
REC BCH OUT
REC ACH OUT
RF SW P
VIDEO VR-19

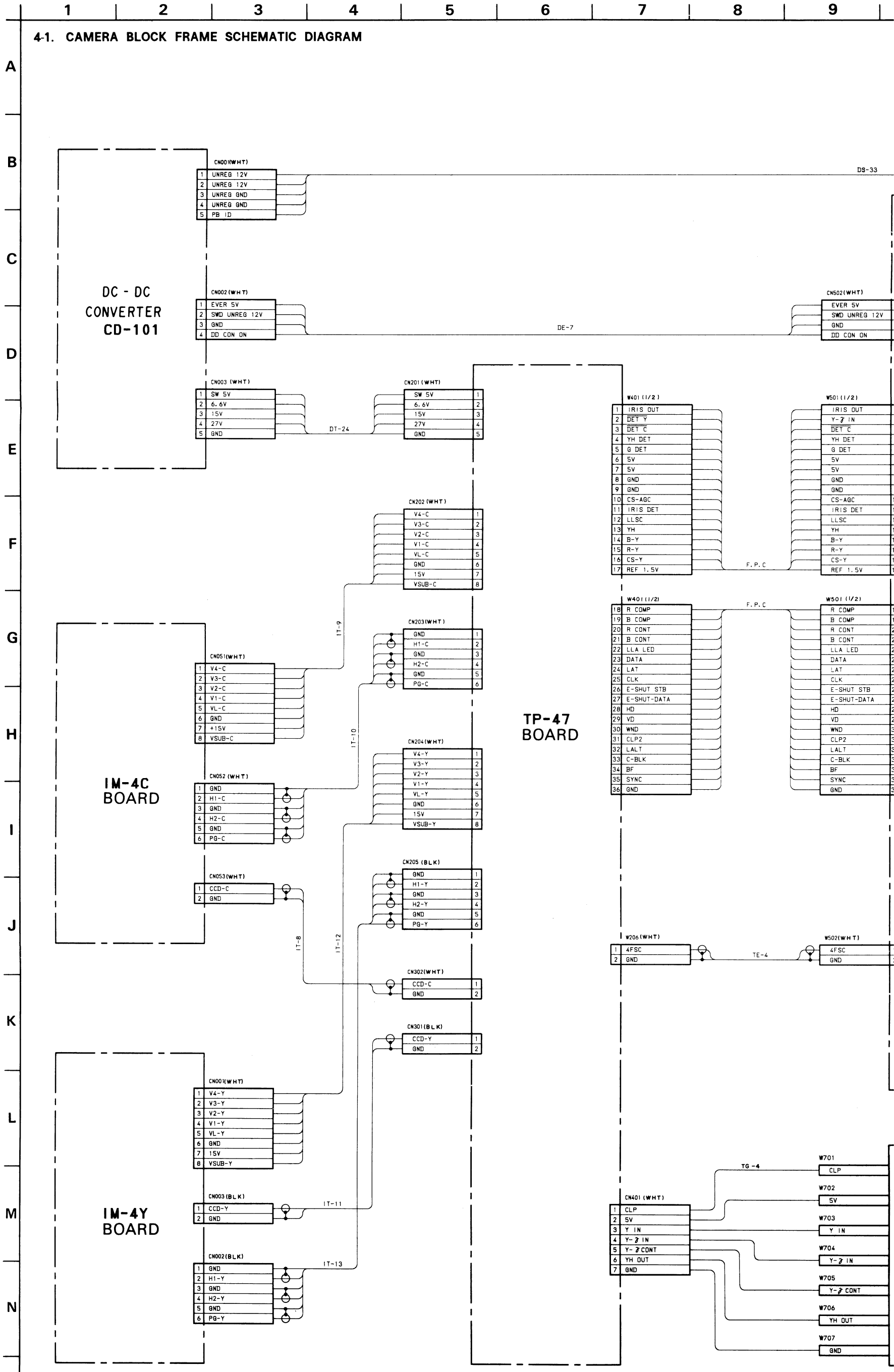
3-10. POWER BLOCK DIAGRAM




SA-26 BOARD (POWER)
(See Page 127)
UNREG 12V
DR301
DC-DC CONVERTER
+9.2V
+7.7V
REG 9V
REG 7.7V
V IN
POWER CONT
+5V
EVER 5V
REG 5V
EVER 5V
FB01
CN031
SW OFF 12V
UNREG 12V
BATT SENS
LINCS OC
CN032
Q315-317
Q303,304
SWD 12V/MOTOR Vcc
Q301,302
HETER 12V
IC302
8V REG
IC306
SYNC SEP
IC303
5V REG
μ COM 5V
IC304
RESET
IC301
SERVO/SYSTEM CONTROL
AV REF
A Vdd
Vdd
RESET
BATT/AC PC
BATT LEVEL
P SW IN
POWER CONT
CAM.P CONT
MAIN P.CONT
POWER MODE
BATT ALARM
PB ID
D307
D304
RV301
BATT
D308
DC LIMITER
CN034
BATT LEVEL
Q307
RESET
W002
REG 5V
REG 9V
MOTOR Vcc
REG 5V
REG 9V
MOTOR Vcc
REG 9V
REG 9V
REEL SERVO
CAPSTAN/ DRUM SERVO
NORMAL AUDIO
FLYING ERASE OSC
IC008
IC015
IC001
IC007
IC901
IC305
IC307
LINCS CONTROL
CHARACTOR GENERATOR
CN021
UNREG 12V
REG 9V
REG 7.7V
EVER 5V
μ COM 5V
UNREG 12V
W001
VR-19 BOARD
(See Page 112)
VIDEO
EXPANSION PORT
IC901
REG 9V
REG 5V
EVER 5V
CN025
CN004
REG 9V
CN008
REG 9V
CN009
TAPE TOP SENSOR
L902
TAPE END SENSOR
L901
IC001
EXPANSION PORT
LOADING MOTOR DRIVE
IC002
HEATER CONTROL
PS001
PS002
D014
W002
UNREG 12V
HETER 12V
SWD 12V
EVER 5V
CN019
(See Page 135)
MB-17 BOARD
UNREG 12V
HEATER (+)
CN003
CN004
CN007
HEATER
M903 REEL MOTOR
BRAKE SOLENOID
CN003
CN002
PINCH SOLENOID PM1001
MOTOR Vcc
CN004
CAPSTAN MOTOR
CAPSTAN FG
FG Vcc
MOTOR Vcc
CN006
MOTOR Vcc
CN001
DRUM MOTOR
FG Vcc
CN005
TPU(+)
CN011
TENSION PICK-UP
MD BLOCK
μ COM 5V
CN030
CN501
IC501
EXPANSION PORT
FU-64 BOARD
(See Page 127)
UNREG 12V
CN029
CN901
POWER CONT
POWER MODE
BATT ALARM
PB ID
CN-34 BOARD
CN904
32PIN CONNECTOR
MIC 9V
CN903
(See Page 113)
AD-14 BOARD
(See Page 143)
CN001
LI 3V
Q701-703
Q704
Vdd ON RESET
Q705
Q708
IC702 (1/2)
RESET
IC702 (1/2)
LITHIUM BATT. DOWN DET
IC701
MODE CONTROL
RESET
CN005
UNREG 12V
μ COM 5V
EVER 5V
REG 7.7V
REG 9V
CN006
AU 9V
CN009
S706
BATT CHECK
RV701
BATTERY LEVEL
Q706
S707
LIGHT
PL701-703
D703-705
Q707
MTR R (AFM AUDIO)
CN007
MTR R/BATT
AUDIO LEVEL (R) / BATTERY
IC301
IC303
MIC AMP INPUT SELECTOR
IC582,
IC583
METER AMP
IC502
OUTPUT SELECTOR
IC503,
IC504
MUTING
Q301
RIPPLE FILTER
Q501
RIPPLE FILTER
MIC 9V
CN011
IC501
IC001-IC004, IC202
5V REG
AFM AUDIO (BETA HIFI)

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. CAMERA BLOCK FRAME SCHEMATIC DIAGRAM



8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

1	GAIN UP IND
2	RETURN Y IN
3	N.C.
4	SWD UNREG 12V
5	REC IND
6	WB IND
7	LLA IND
8	GND

CN934 VIEW FINDER

J951 Lch Rch

1	N.C.
2	Vcc
3	GND
4	MIC R
5	MIC L
6	GND

CN957 MIC

DS-33

W931(WHT)

RETURN Y IN	1
GND	2
EVF 12V	3
WB NG	4
L LA	5
GAIN LED	6

W932 (WHT)

1	REC ALARM
2	GND

EV-2 BOARD

VJ-31

CN502(WHT)

EVER 5V	1
SWD UNREG 12V	2
GND	3
DD CON ON	4

CHECK POINT ARRAY I/P

1	DTL OUT
2	VAP OUT
3	IRIS OUT
4	Y-γ IN
5	$\overline{\text{DET C}}$
6	YH
7	G DET
8	AWB ADJ MODE
9	E-VR ADJ MODE
10	GND
11	N.C.

W911(WHT)

SENS POSI	1
GND	2

W912(WHT)

1	VTR START/STOP
2	GND

SW-85 BOARD

SJ-10

W501(1/2)

IRIS OUT	1
Y-γ IN	2
$\overline{\text{DET C}}$	3
YH DET	4
G DET	5
5V	6
5V	7
GND	8
GND	9
CS-AGC	10
IRIS DET	11
LLSC	12
YH	13
B-Y	14
R-Y	15
CS-Y	16
REF 1.5V	17

F.P.C

CN953(WHT)

VTR START/STOP	1
GND	2

CN505(WHT)

1	RETURN Y OUT
2	GND
3	EVF 12V
4	WB NG
5	L LA
6	GAIN LED

SE-14

W902 (WHT)

UNREG 12V	1
UNREG 12V	2
UNREG GND	3
UNREG GND	4
PB ID	5

CN903(WHT)

1	UNREG +12V
2	UNREG +12V
3	UNREG GND
4	UNREG GND
5	POWER MODE
6	PB ID
7	POWER CONT

CN955(WHT)

REC ALARM	1
GND	2

W501(1/2)

R COMP	18
B COMP	19
R CONT	20
B CONT	21
LLA LED	22
DATA	23
LAT	24
CLK	25
E-SHUT STB	26
E-SHUT-DATA	27
HD	28
VD	29
WND	30
CLP2	31
LALT	32
C-BLK	33
BF	34
SYNC	35
GND	36

F.P.C

EM-3 BOARD

CN508(WHT)

1	WB POSI
2	GND
3	CAM ON CONT

W003

1	DD CON ON

W901(WHT)

WB POSI	1
GND	2
UNREG +12V	3
CAM ON	4

SW-86 BOARD

CN956(WHT)

REC REVIEW	1
GND	2

JS-12

SJ-11

CN506(WHT)

1	EDIT+VF DISP
2	E-SHUT SW
3	GND

ES-8

CN507(WHT)

1	SENS POSI
2	GND

W921(WHT)

EDIT + VF DISP	1
E-SHUT SW	2
GND	3

W922 (WHT)

1	REC REVIEW
2	GND

SW-84 BOARD

W952(WHT)

UNREG +12V	1
UNREG +12V	2
UNREG GND	3
UNREG GND	4
POWER MODE	5
PB ID	6
POWER CONT	7

CN503(BLK)

1	VTR START/STOP
2	GND
3	IRIS CONT OUT
4	SWD UNREG 12V
5	IRIS CLOSE

ME-7

SE-13

CN651

WB POSI	1
GND	2
UNREG +12V	3
CAM ON	4

W652

WB POSI	1
GND	2
CAM ON CONT	3

W 002

DD CON ON	1

MR-18 BOARD

W502(WHT)

4FSC	1
GND	2

TE-4

CN504(WHT)

1	RET Y IN (X)
2	RET Y IN (GND)
3	C OUT (X)
4	C OUT (GND)
5	Y OUT (X)
6	Y OUT (GND)
7	LINCS IN/OUT
8	(GND)
9	VTR START/STOP

CN954(WHT)

RET Y IN (X)	1
RET Y IN (GND)	2
C OUT (X)	3
C OUT (GND)	4
Y OUT (X)	5
Y OUT (GND)	6
LINCS IN/OUT	7
(GND)	8
VTR START/STOP	9

EJ-3

TG-4

W701 CLP

W702 5V

W703 Y IN

W704 Y-γ IN

W705 Y-γ CONT

W706 YH OUT

W707 GND

GM-4 BOARD

EL-1

a b c d e

CN961

JK-37 BOAR

J951 Lch Rch

1	N.C.
2	Vcc
3	GND
4	MIC R
5	MIC L
6	GND

CN957 MIC

CN951 32P

1a	FRAME GND
1b	POWER CONT
2a	UNREG GND
2b	UNREG GND
3a	UNREG +12V
3b	UNREG +12V
4a	VTR START/STOP
4b	POWER MODE
5a	(GND)
5b	LINCS IN/OUT
6a	BATT ALARM
6b	REC ALARM
7a	PB ID
7b	REC REVIEW
8a	LINE L (GND)
8b	LINE L (X)
9a	LINE R (X)
9b	LINE R (GND)
10a	LINE /MIC
10b	N.C.
11a	MIC 9V
11b	MIC L (X)
12a	MIC R (X)
12b	MIC GND
13a	MIX LINE (GND)
13b	MIX LINE (X)
14a	Y OUT (GND)
14b	Y OUT (X)
15a	C OUT (GND)
15b	C OUT (X)
16a	RET Y IN (X)
16b	RET Y IN (GND)

TO VTR BLOCK CN-34 BOARD CN904

VJ-31

SJ-10

CN953(WHT)

VTR START/STOP	1
GND	2

CN955(WHT)

REC ALARM	1
GND	2

SJ-11

JS-12

CN956(WHT)

REC REVIEW	1
GND	2

JK-37 BOARD

W952(WHT)

UNREG +12V	1
UNREG +12V	2
UNREG GND	3
UNREG GND	4
POWER MODE	5
PB ID	6
POWER CONT	7

CN954(WHT)

RET Y IN (X)	1
RET Y IN (GND)	2
C OUT (X)	3
C OUT (GND)	4
Y OUT (X)	5
Y OUT (GND)	6
LINCS IN/OUT	7
(GND)	8
VTR START/STOP	9

a b c d e

CN961

Q009 VQ-1

CN103(BLK)

REG CONT	1
REG OUT	2
REG IN	3

CN107

	1
	2

CN106(YEL)

LL IND OUT	1
GAIN UP IND OUT	2

CN102(BLK)

UNREG (+12V) OUT	1
GND	2
REC IND OUT	3
WHT. BAL IND OUT	4
TALLY IND OUT	5

CN104(WHT)

BRIGHTNESS	1
CONTRAST	2
GND	3
CONTRAST	4
TALLY ON/OFF CONT	5

VF-17 BOARD

CN101

1 UNREG (+12V) IN	a
2 GND	b
3 VF VIDEO(G) IN	c
4 VF VIDEO(X) IN	d
5 REC IND IN	e
6 WHT. BAL IND OUT	f
7 LL IND IN	g
8 GAIN UP IND IN	h

CN001 (VF CONNECTOR 8P PLUG)

CN105

1 H DEF OUT	
2 H DEF OUT	

L90 (1/2 HDY COIL)

CRT SOKET

G3 G2 G1 HK H

VDY COIL L90 (1/2)

J1 J2 J3 J4 J5 J6

VV-17

LV-2 LV-1 SV-65

CN201(RED)

1 V BLKG OUT	J1
2 FBP IN	J2
3 HD OUT	J3
4 +9V IN	J4
5 VIDEO IN	J5
6 GND	J6

VF-18 BOARD

CN202

1 V DEF OUT	
2 V DEF OUT	

SW-98 BOARD

LW-2 BOARD (WHITE BAL)

LW-3 BOARD (REC)

LW-4 BOARD (GAIN UP)

LW-5 BOARD (LOW LIGHT)

CRT GND

LW-6 BOARD (TALLY)

VCL-1010BY

CN105

+12V	1
ZOOM POT.	2
GND	3

RV102 ZOOM POT.

CN106

ZOOM MOTOR (-)	1
ZOOM MOTOR (+)	2

M904 ZOOM MOTOR

CN108

GND	1
VTR SW	2

S103 VTR SW

CN109

NC	1
GND	2

CN110

REF Vo	1
+12V	2
NC	3
GND	4
GND	5
GND	6
+12V	7
VTR SW	8

21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32

CN001
(VF CONNECTOR 8P PLUG)

Q009
VQ-1

CN103 (BLK)
REG CONT 1
REG OUT 2
REG IN 3

CN101
1 UNREG (+12V) IN a
2 GND b
3 VF VIDEO(G) IN c
4 VF VIDEO(X) IN d
5 REC IND IN e
6 WHT. BAL IND OUT f
7 LL IND IN g
8 GAIN UP IND IN h

VF-17
BOARD

TO
VTR BLOCK
N-34 BOARD
CN904

CN107
1
2

CN105
1 H DEF OUT
2 H DEF OUT

L903
(1/2)
HDY
COIL

CRT
SOKET
G3 1
G2 6
G1 7
2
HK 4
H 5
3

V901
PICTURE TUBE
40LB4

VDY
COIL
L903
(1/2)

CN106 (YEL)
a LL IND OUT 1
b GAIN UP IND OUT 2

CN102 (BLK)
a UNREG (+12V) OUT 1
b GND 2
c REC IND OUT 3
d WHT. BAL IND OUT 4
e TALLY IND OUT 5

CN104 (WHT)
BRIGHTNESS 1
CONTRAST 2
GND 3
CONTRAST 4
TALLY ON/OFF CONT 5

J1
J2
J3
J4
J5
J6

VV-17

CN201 (RED)
1 V BLKG OUT J1
2 FBP IN J2
3 HD OUT J3
4 +9V IN J4
5 VIDEO IN J5
6 GND J6

VF-18
BOARD

CN202
1 V DEF OUT
2 V DEF OUT

LV-2
LV-1
SV-65

SW-98
BOARD

d
b
WHITE BAL
LW-2
BOARD

c
REC
LW-3
BOARD

b
GAIN UP
LW-4
BOARD

a
LOW LIGHT
LW-5
BOARD

CRT
GND

a
e
TALLY
LW-6
BOARD

VCL-1010BY

RV102
ZOOM POT.

CN105
+12V 1
ZOOM POT. 2
GND 3

M904
ZOOM MOTOR

CN106
ZOOM MOTOR (-) 1
ZOOM MOTOR (+) 2

S103
VTR SW

CN108
GND 1
VTR SW 2

CN109
NC 1
GND 2

CN110
REF Vo 1
+12V 2
NC 3
GND 4
GND 5
GND 6
+12V 7
VTR SW 8

PZ-1
BOARD

CN103
1 CLOSE LEVEL
2 OPEN LEVEL
3 IRIS POT.

RV101
IRIS POT.

CN104
1 IRIS MOTOR(-)
2 IRIS MOTOR(+)

M905
IRIS MOTOR

CN107
1 +12V
2 AUTO ON

S102
I.M SW

S101
IRIS A/M SW

CN101
1 GND
2 UNREG 12V

CN102
1 GND a
2 IRIS CONT b
3 NC c
4 UNREG 12V d
5 VTR SW e
6 IRIS AUTO f

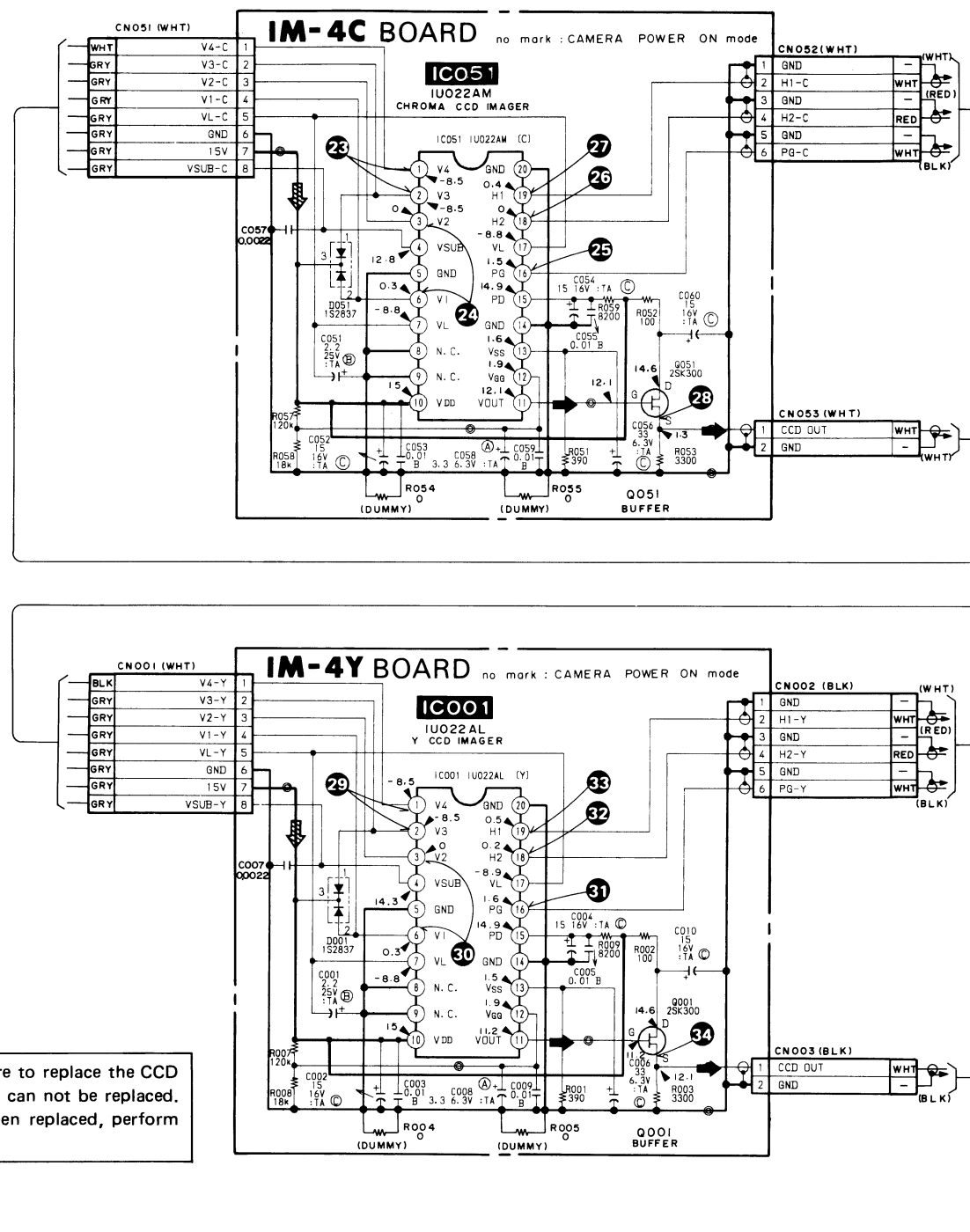
CN101
c 1
e 2
a 3
f 4
b 5
d 6

4-2. CAMERA BLOCK PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

TP-47 (AGC, CHROMA PROCESS), IM-4Y (Y CCD IMAGER), IM-4C (CHROMA CCD IMAGER), GM-4 (Y GAMMA) SCHEMATIC DIAGRAM

— Ref. No. TP-47, IM-4Y, IM-4C, GM-4 BOARDS : 1000 series —

CAMERA BLOCK



- When replacing the CCD imager, be sure to replace the CCD block assembly. The CCD imager alone can not be replaced.
- When the CCD block assembly has been replaced, perform the overall camera block adjustment.

TP-47 BOARD

no mark : CAMERA POWER ON mode
* : can not be measured

TO DC - DC CONVERTER CN003 (See Page 83)

CN201 (WHT)
CN202 (WHT)
CN203 (WHT)
CN204 (WHT)
CN205 (BLK)
CN301 (BLK)
CN302 (WHT)

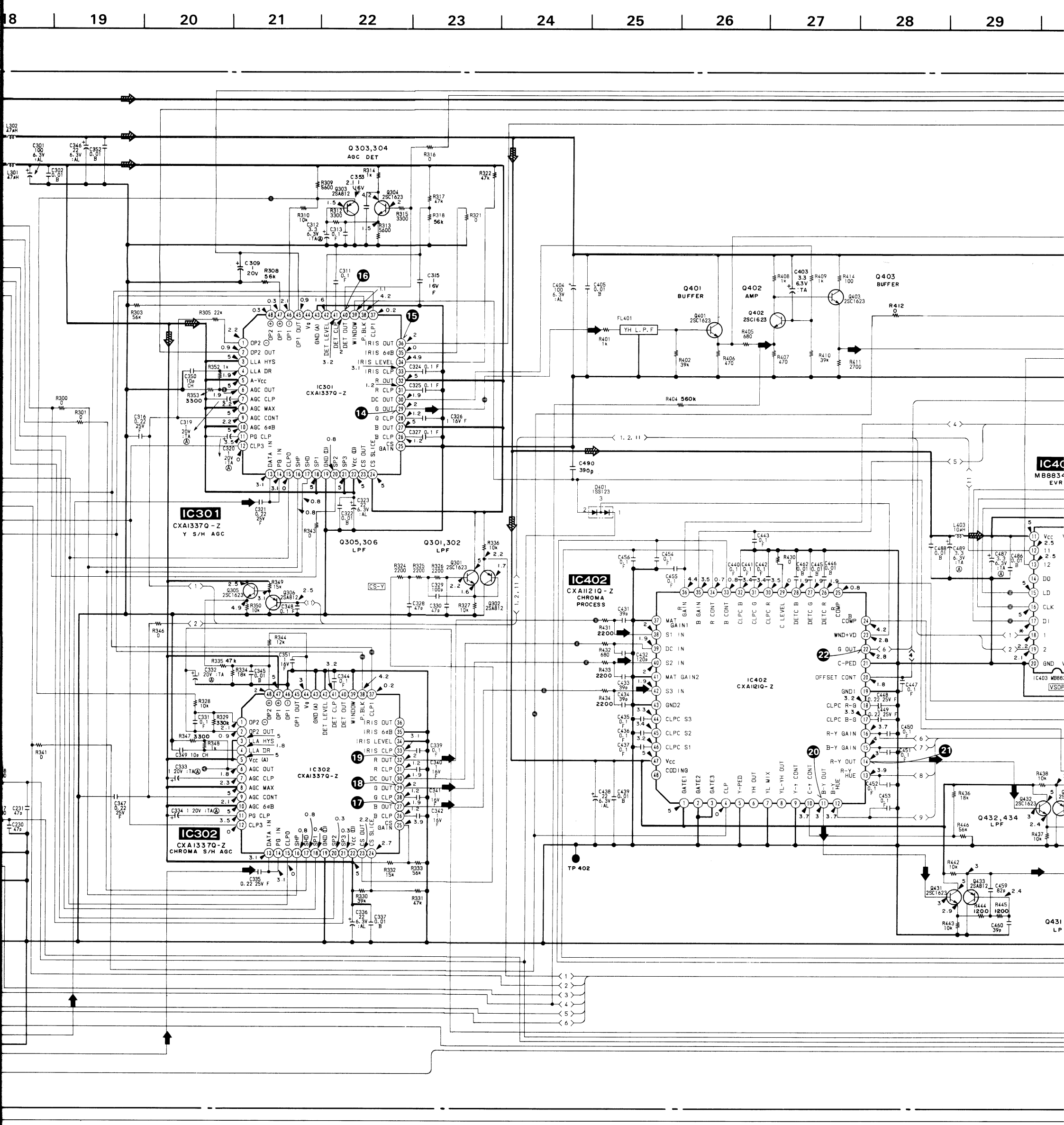
DT-72 BOARD (See page 105)

IC201 CX-7930A
CX-7930A SYNC GENERATOR

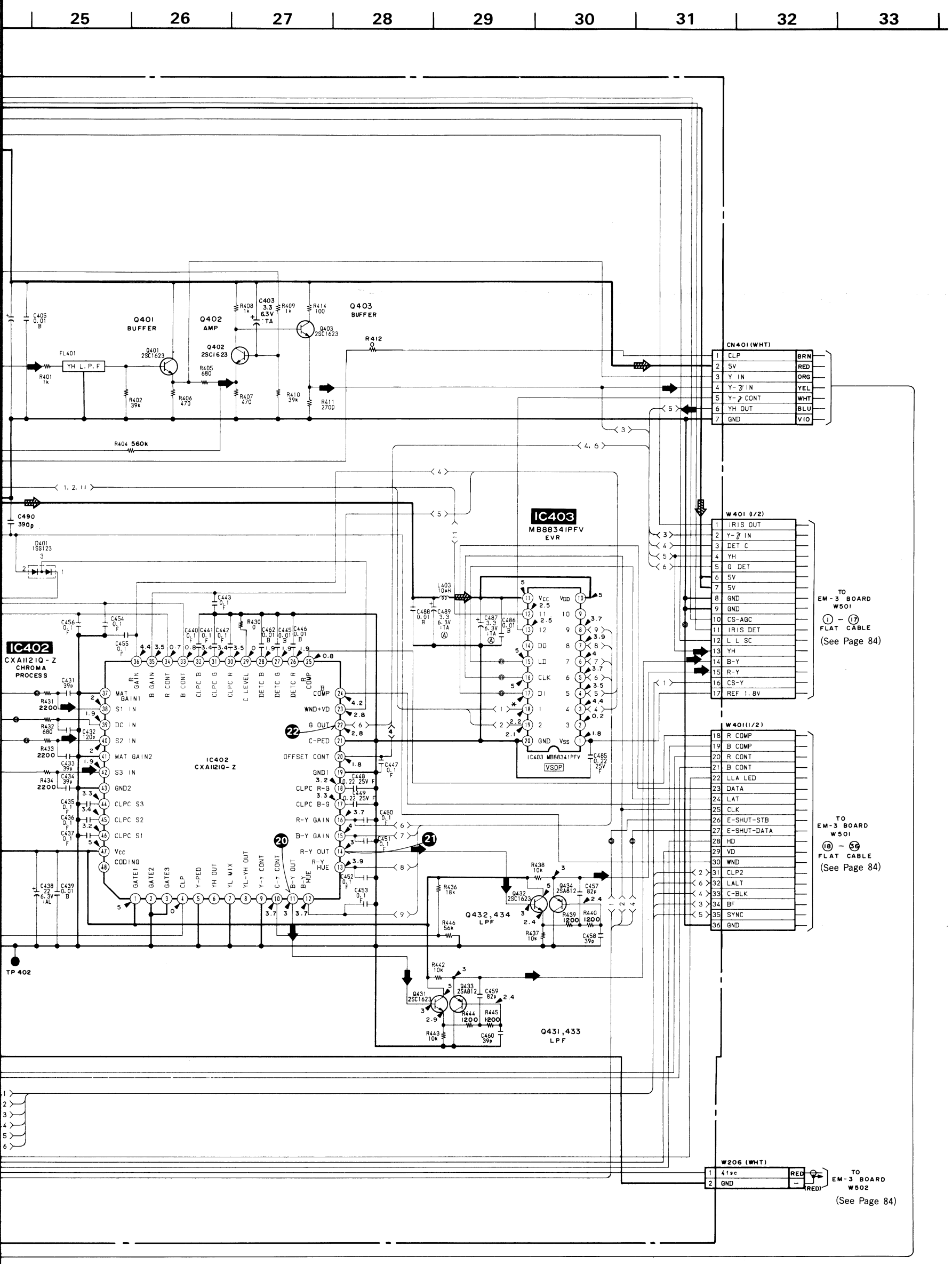
IC301 CXA1337Q-Z Y S/H AGC

IC302 CXA1337Q-Z CHROMA S/H AGC

Q201, 203, 206
CHAGE SWEEP AWAY PULSE DRIVE



● Signal pa
➡ :REC
➡ :REC



● **Signal path**

➡ :REC Y SIGNAL

➡ :REC CHROMA SIGNAL

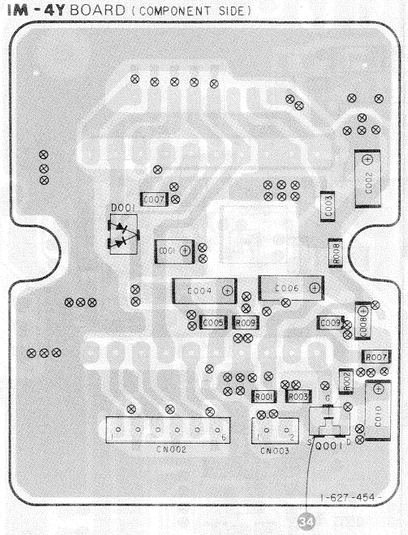
TP-47 **IM-4Y** **IM-4C** **GM-4**

TP-47 (AGC, CHROMA PROCESS), IM-4Y (Y CCD IMAGER), IM-4C (CHROMA CCD IMAGER), GM-4 (Y GAMMA) PRINTED WIRING BOARD

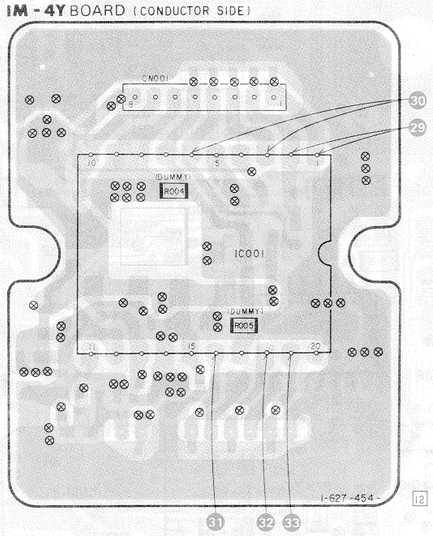
— Ref. No. TP-47, IM-4Y, IM-4C, GM-4 BOARDS : 1000 series —

CAMERA BLOCK

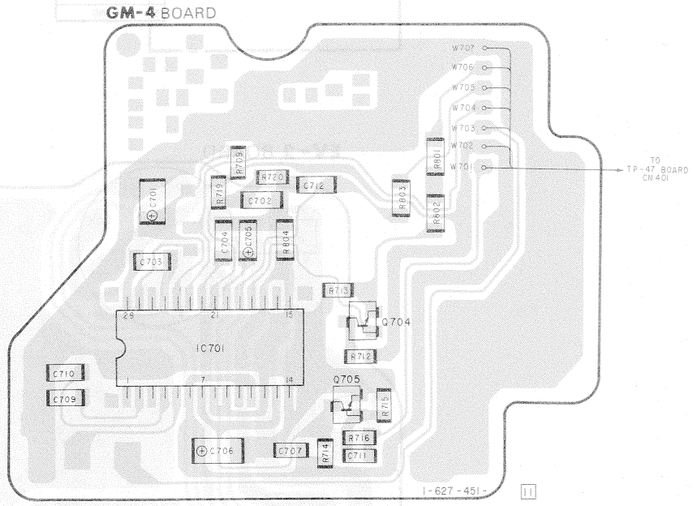
IM-4Y BOARD (COMPONENT SIDE)



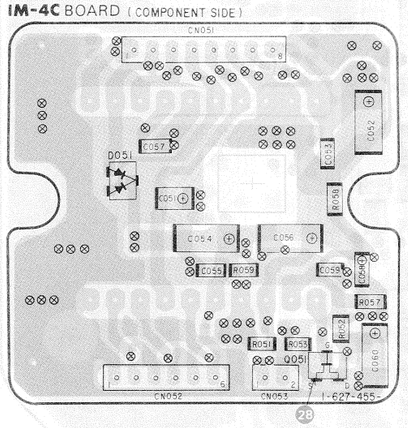
IM-4Y BOARD (CONDUCTOR SIDE)



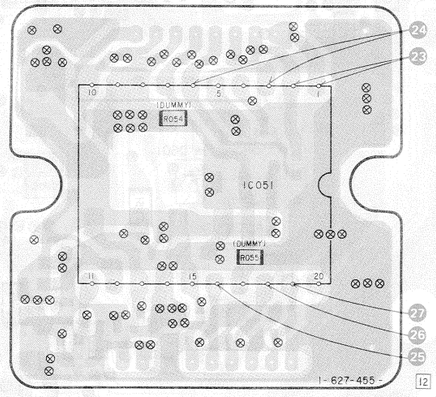
GM-4 BOARD



IM-4C BOARD (COMPONENT SIDE)

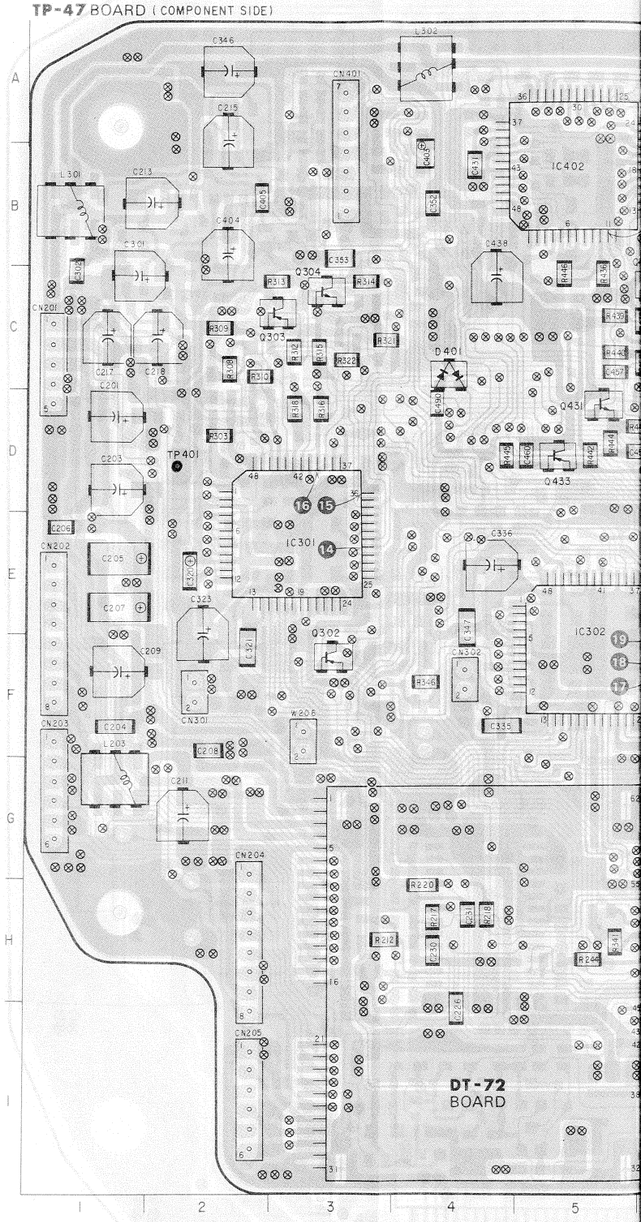


IM-4C BOARD (CONDUCTOR SIDE)

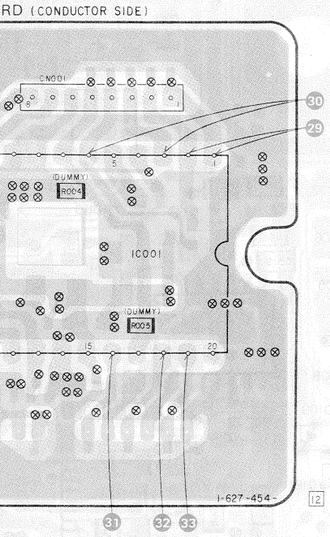


TP-47 BOARD	
CN201	C-1
CN202	E-1
CN203	G-1
CN204	H-2
CN205	I-2
CN301	F-2
CN302	F-4
CN401	A-3
D201	B-12
D202	B-12
D401	C-4
IC201	H-10
IC301	E-3
IC302	F-5
IC402	B-5
IC403	C-8
Q201	B-12
Q202	B-12
Q203	D-12
Q206	C-12
Q301	E-11
Q302	F-3
Q303	C-3
Q304	C-3
Q305	D-10
Q306	D-10
Q401	B-12
Q402	B-11
Q403	B-11
Q431	D-5
Q432	C-6
Q433	D-5
Q434	C-6
TP401	D-2
TP402	A-6

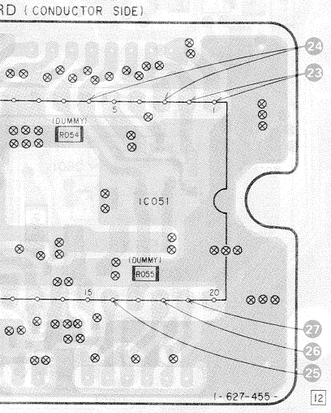
TP-47 BOARD (COMPONENT SIDE)



RD (CONDUCTOR SIDE)



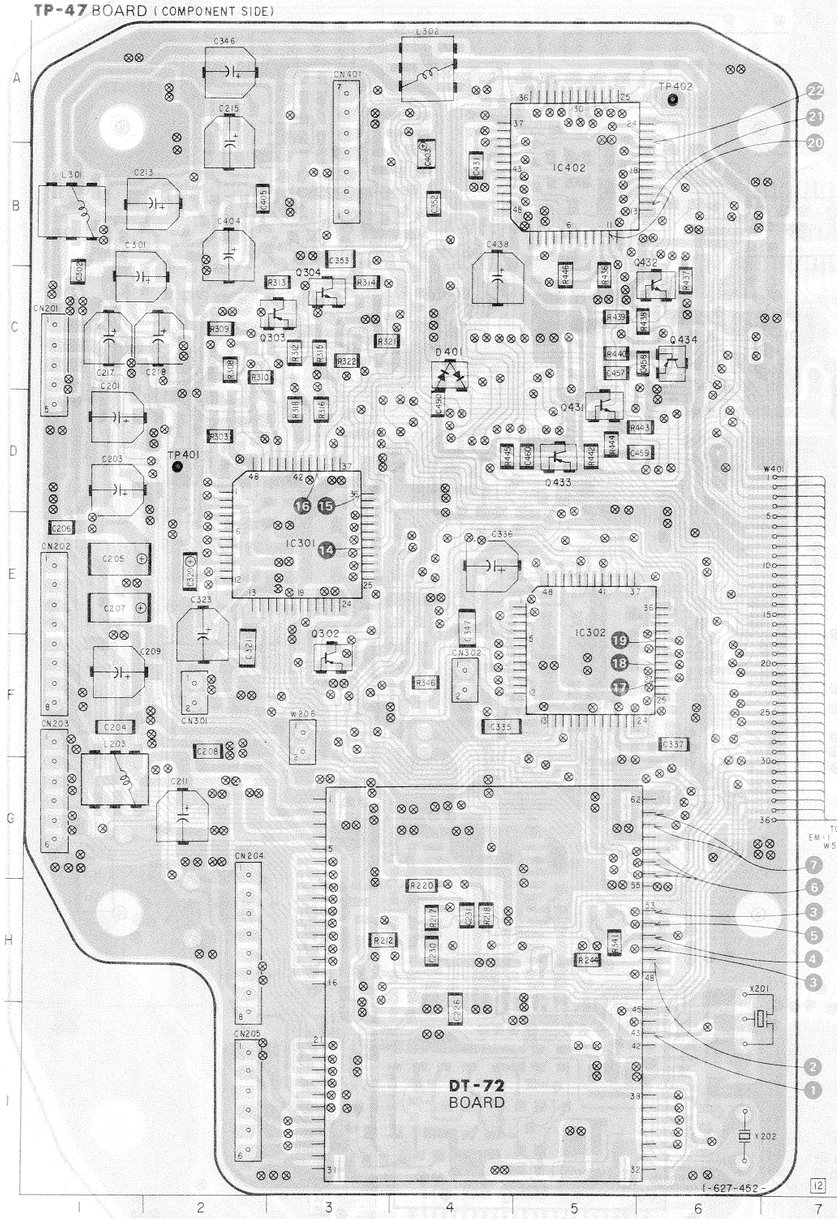
RD (CONDUCTOR SIDE)



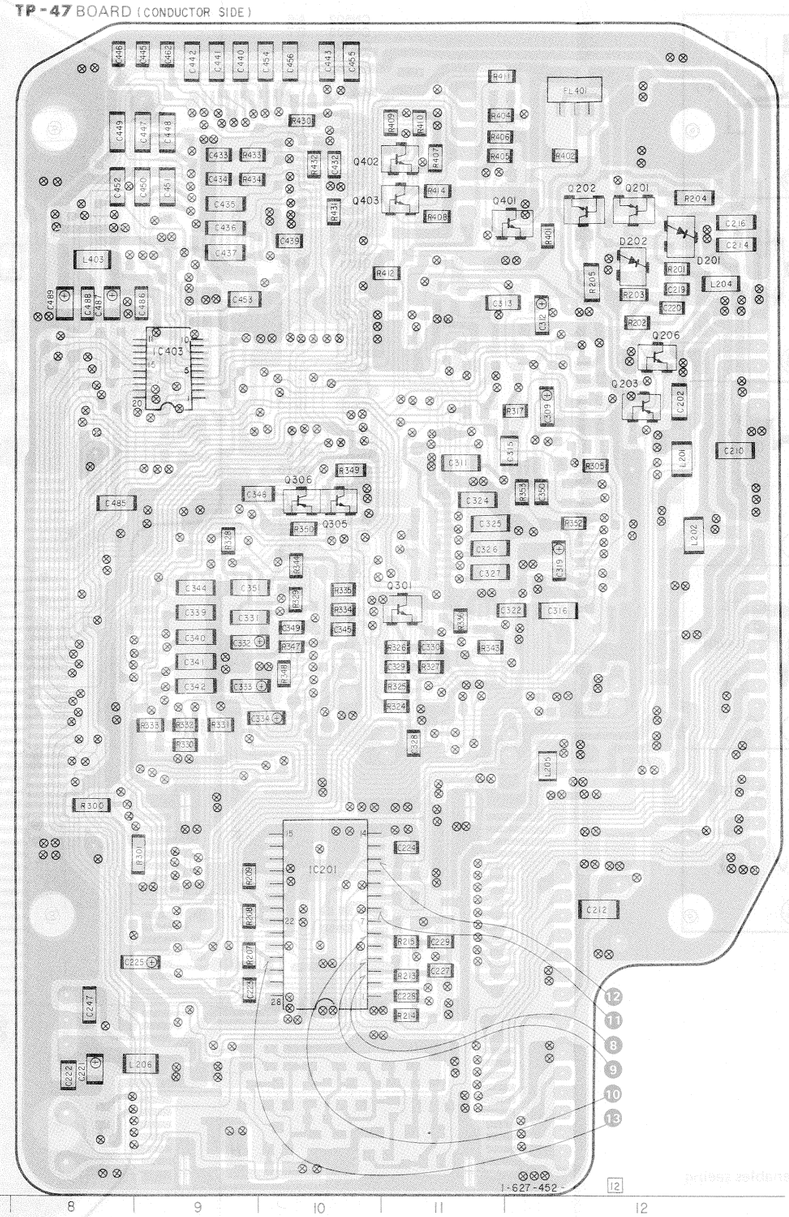
TP-47 BOARD

CN201	C-1
CN202	E-1
CN203	G-1
CN204	H-2
CN205	I-2
CN301	F-2
CN302	F-4
CN401	A-3
D201	B-12
D202	B-12
D401	C-4
IC201	H-10
IC301	E-3
IC302	F-5
IC402	B-5
IC403	C-8
Q201	B-12
Q202	B-12
Q203	D-12
Q206	C-12
Q301	E-11
Q302	F-3
Q303	C-3
Q304	C-3
Q305	D-10
Q306	D-10
Q401	B-12
Q402	B-11
Q403	B-11
Q431	D-5
Q432	C-6
Q433	D-5
Q434	C-6
TP401	D-2
TP402	A-6

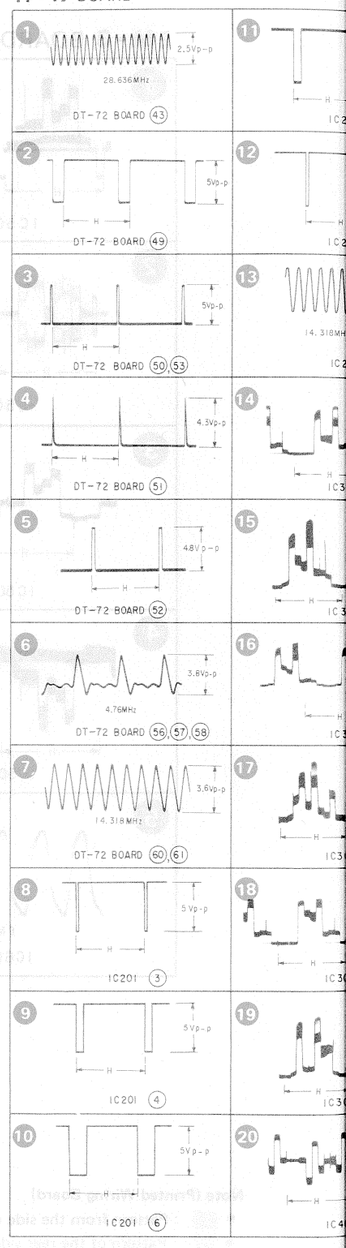
TP-47 BOARD (COMPONENT SIDE)



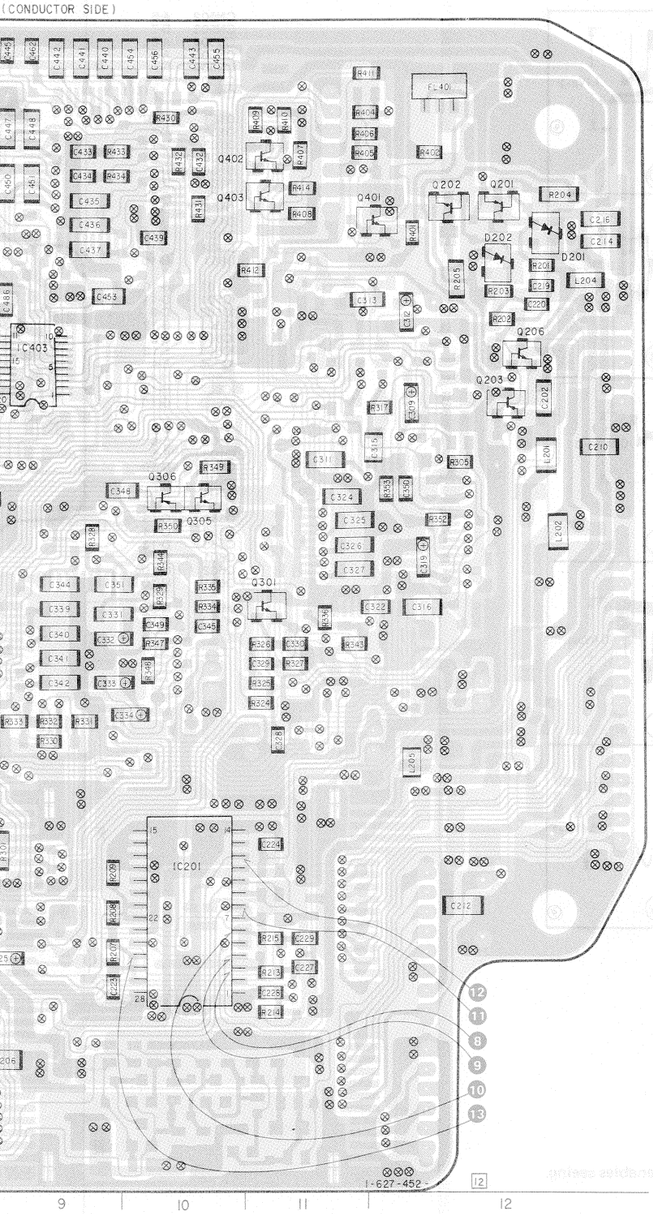
TP-47 BOARD (CONDUCTOR SIDE)



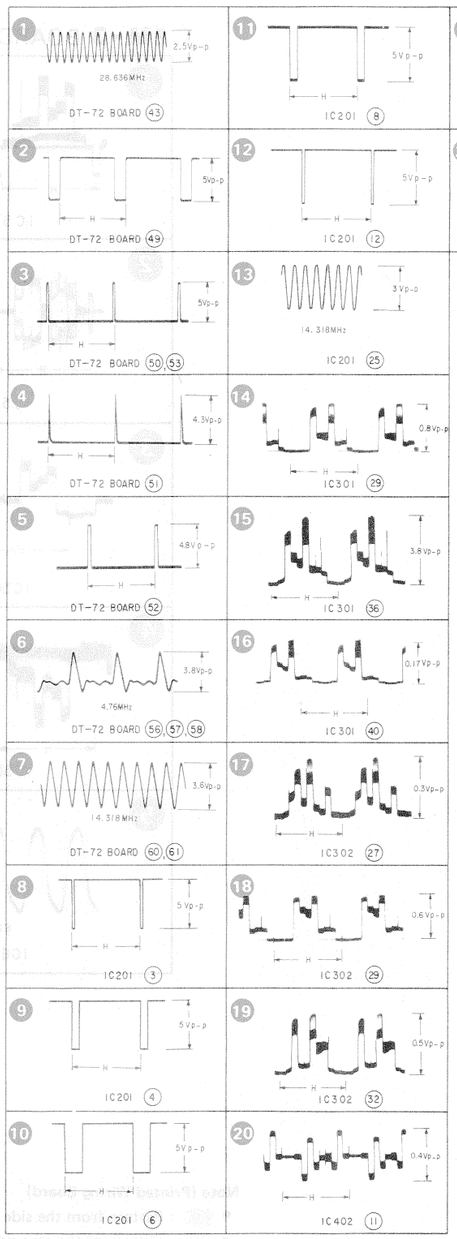
TP-47 BOARD



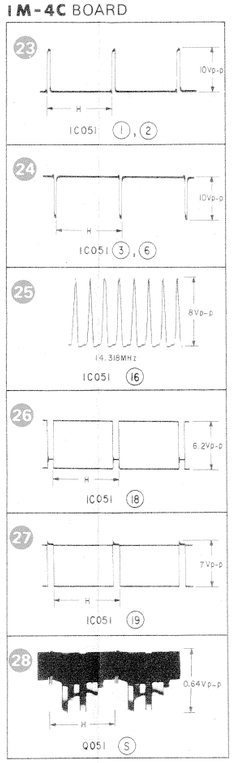
(CONDUCTOR SIDE)



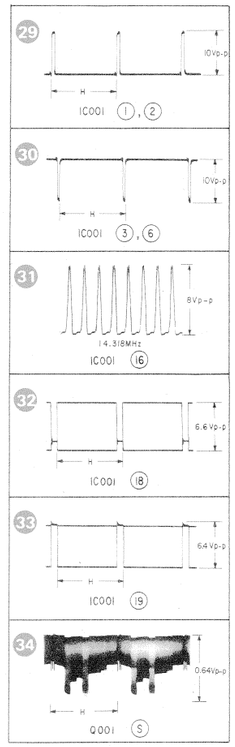
TP-47 BOARD



IM-4C BOARD



IM-4Y BOARD



Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment designation.
- : B+ line.
- Measuring conditions of voltage value and waveform
  (1) The subject is color bar of pattern box.
  (2) The voltage value is a reference value between the grounding.
  (The tester used is the digital multimeter DC10MΩ)
- The ● number is the reference number in the waveform diagram.
- indicates the I/O direction of B lines (+, −).

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

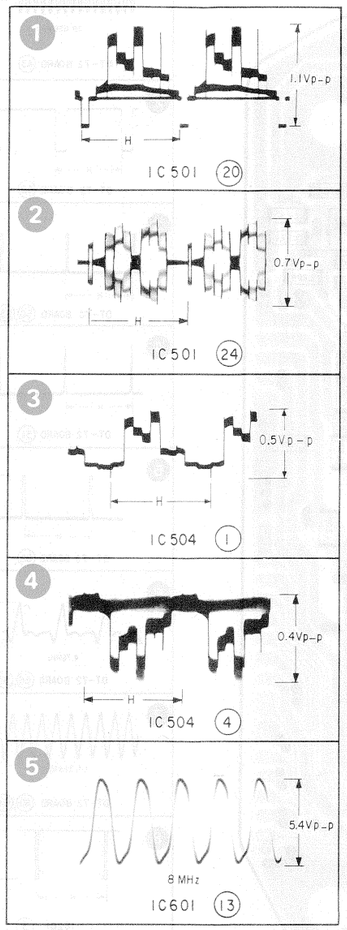
Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- The ● number is the reference number in the waveform diagram.

Note	
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

EM-3 BOARD



Note (Printed Wiring Board)

- ● ▒▒ : Pattern from the side which enables seeing.
- ● ▒▒ : Pattern of the rear side.

Note

Conductor side: Parts on the conductor side being seen from the conductor are stated.

Component side: Parts on the component side being seen from the component are stated.

EM-3 (CAMERA ENCODER, IRIS/CAMERA SYSTEM CONTROL), EV-2 (EVF CONNECTOR), MR-18 (RESET) PRINTED WIRING BOARD

— Ref. No. EM-3, EV-2 BOARDS : 1000 series, MR-18 BOARD : 2000 series —

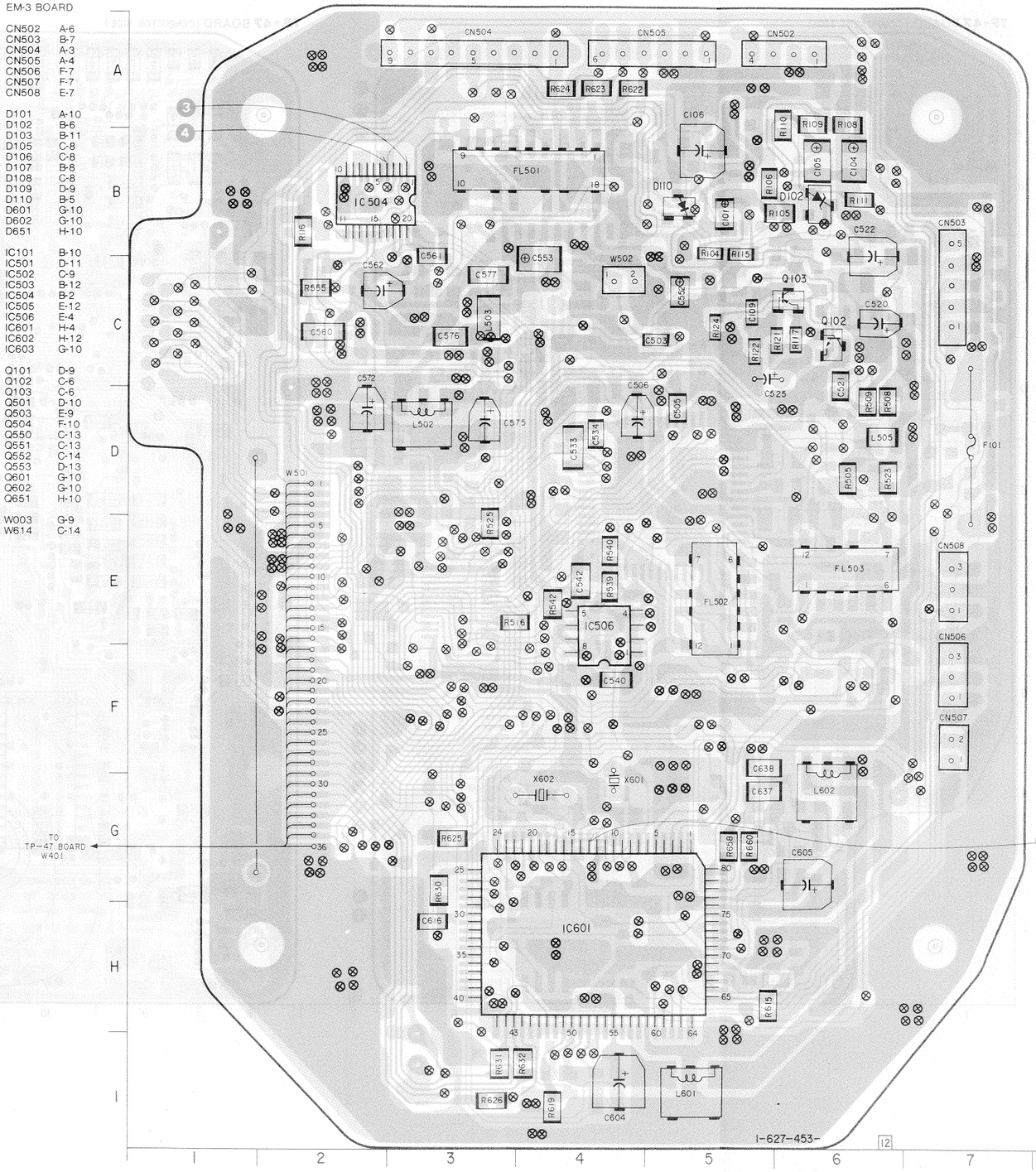
CAMERA BLOCK

EM-3 BOARD

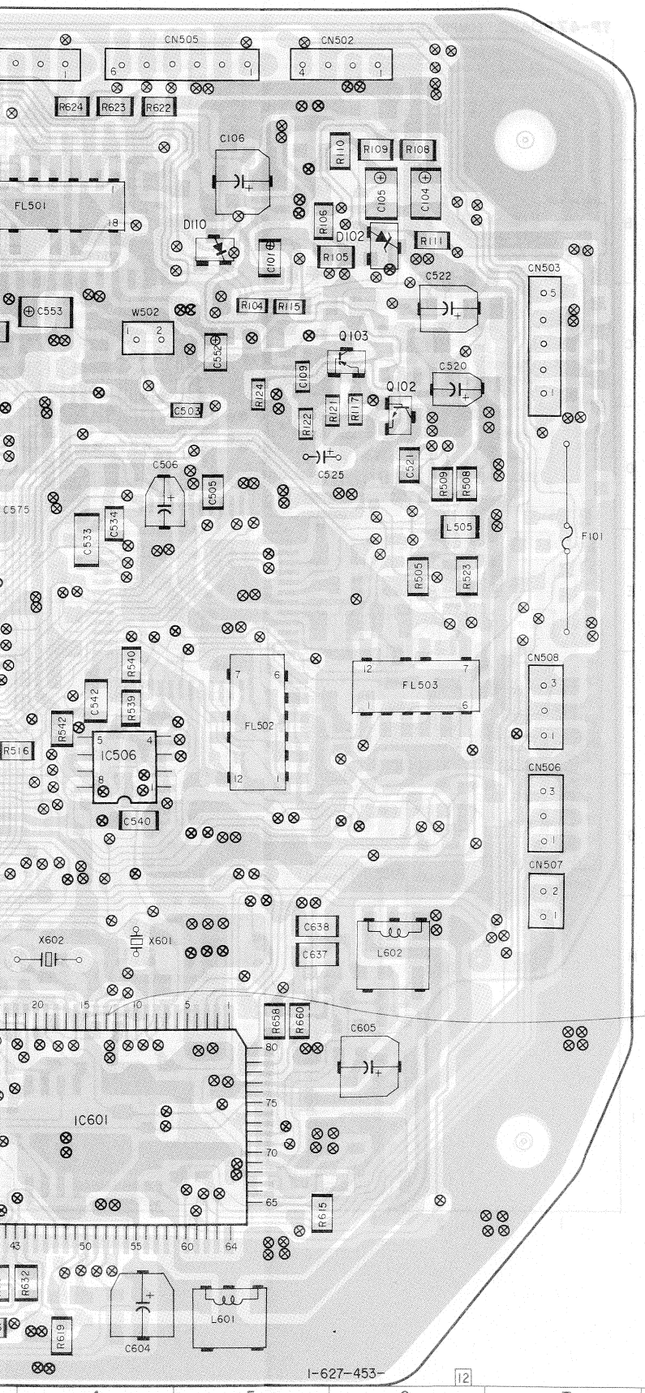
CN502	A-6	A
CN503	B-7	
CN504	A-3	
CN505	A-4	
CN506	F-7	
CN507	F-7	
CN508	E-7	
D101	A-10	B
D102	B-6	
D103	B-11	
D105	C-8	
D106	C-8	
D107	B-8	
D108	C-8	
D109	D-9	
D110	B-5	
D601	G-10	
D602	G-10	
D651	H-10	
IC101	B-10	C
IC501	D-11	
IC502	C-9	
IC503	B-12	
IC504	B-2	
IC505	E-12	
IC506	E-4	
IC601	H-4	
IC602	H-12	
IC603	G-10	
Q101	D-9	D
Q102	C-6	
Q103	C-6	
Q501	D-10	
Q503	E-9	
Q504	F-10	
Q550	C-13	
Q551	C-13	
Q552	C-14	
Q553	D-13	
Q601	G-10	
Q602	G-10	
Q651	H-10	
W003	G-9	E
W614	C-14	

TO TP-47 BOARD W401 (F, G)

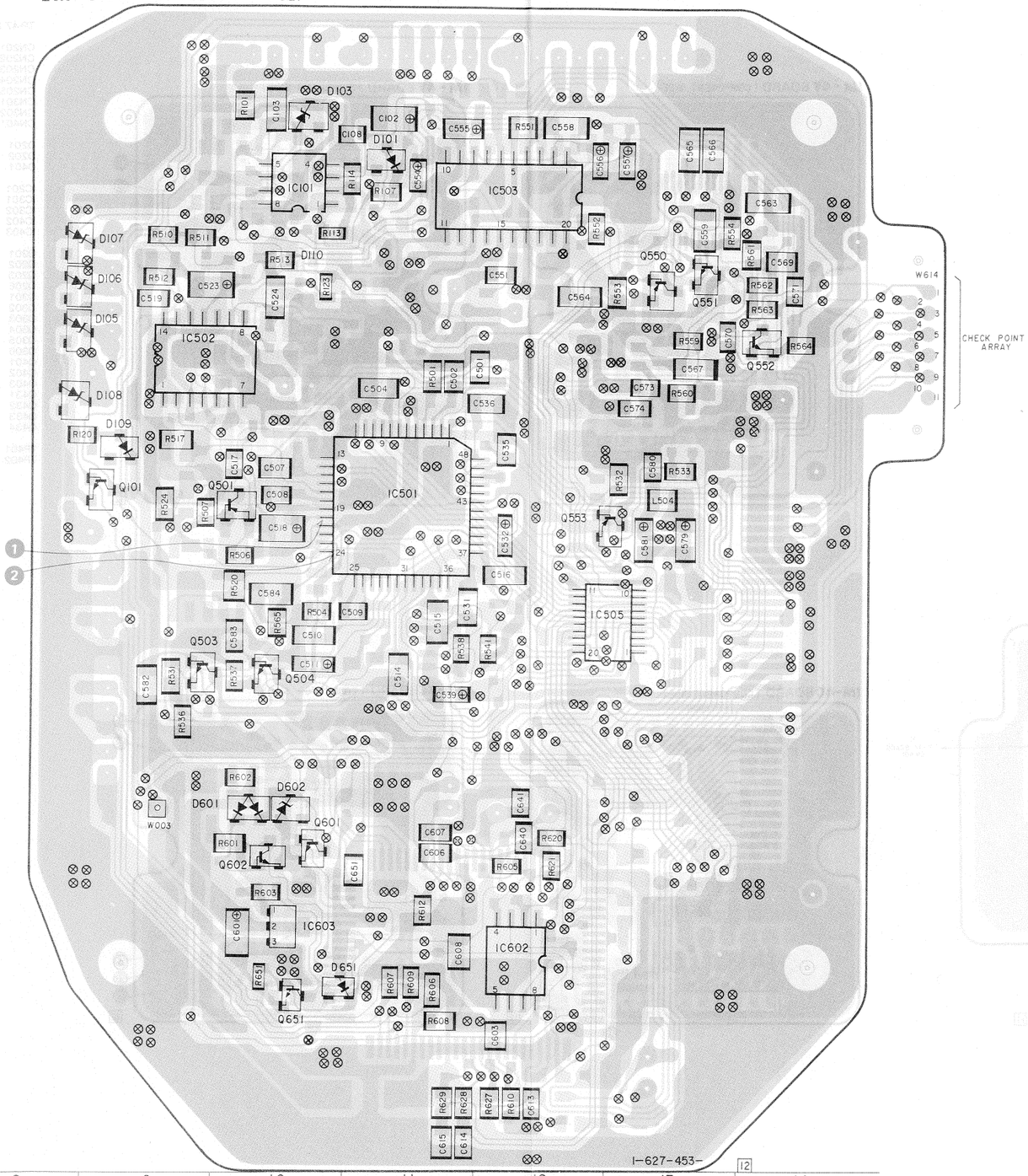
EM-3 BOARD (COMPONENT SIDE)



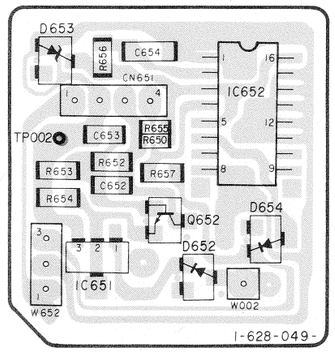
(EVF CONNECTOR), MR-18 (RESET) PRINTED WIRING BOARD

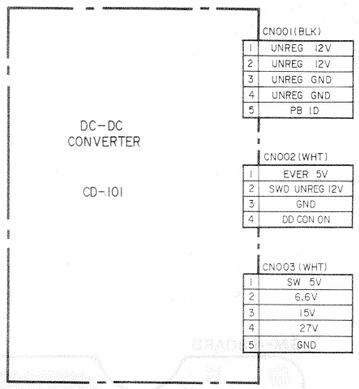


EM-3 BOARD (CONDUCTOR SIDE)

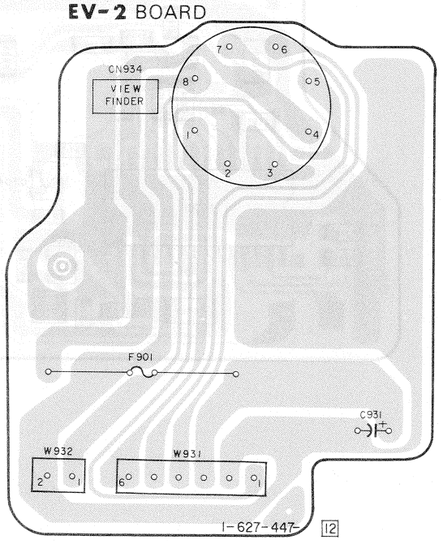


MR-18 BOARD



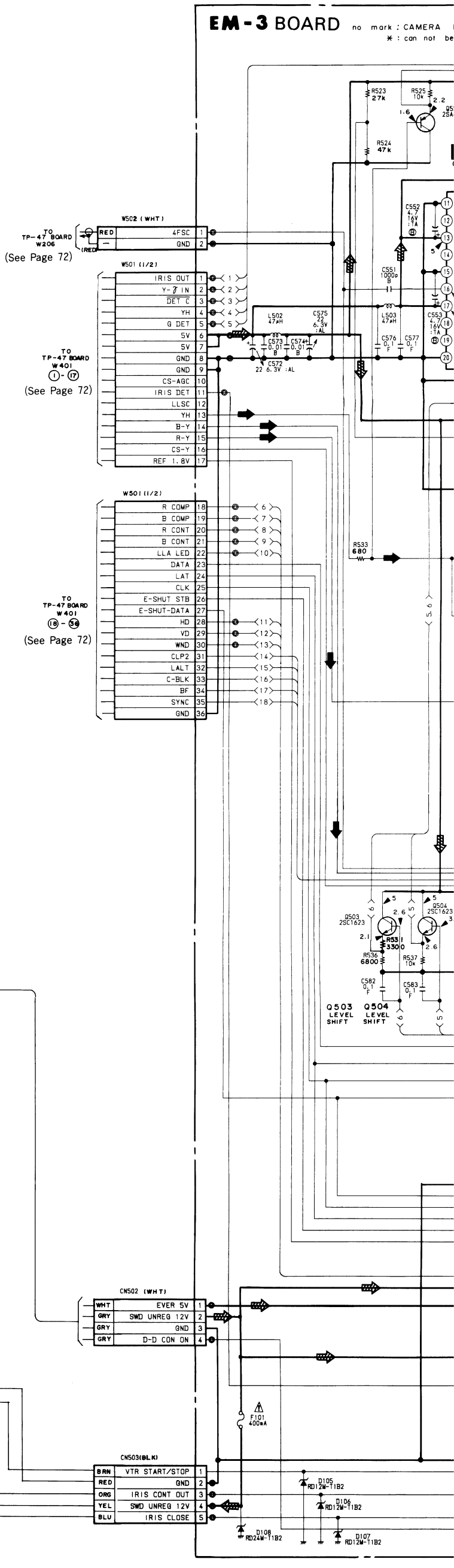


EV-2 BOARD



— Ref. No. EM-3, EV-2 BOARDS : 1000 series, MR-18 BOARD : 2000 series —

CAMERA BLOCK



7	8	9	10	11	12	13	14	15	16	17	18

EM-3 BOARD

no mark : CAMERA POWER ON mode
* : can not be measured

(See Page 97)

TO JK-37 BOARD CN954

CHECK POINT ARRAY

W614: 1 DTL OUT, 2 VAP OUT, 3 IRIS OUT, 4 Y-∫ IN, 5 DET C, 6 YH, 7 G DET, 8 AWB ADJ MODE, 9 E-VR ADJ MODE, 10 GND, 11 N.C.

CN504 (WHT): 1 RET Y IN (X), 2 RET Y IN (GND), 3 C OUT (X), 4 C OUT (GND), 5 Y OUT (X), 6 Y OUT (GND), 7 L INCS IN/OUT, 8 * (GND), 9 VTR START/STOP

CN505 (WHT): 1 RET Y OUT, 2 GND, 3 EVF 12V, 4 WB NG, 5 L LA, 6 GAIN LED

IC503 CXL1504M — IH DELAY

IC504 CXA1270N — VERTICAL APERTURE COMPENSATOR

IC501 CXA1072Q-Z — ENCODER

IC502 CX20095A — Y/CHROMA OUTPUT

IC505 MB88341PFV — EVR

IC506 µPC358G2 — 1.5V REG LOW LIGHT DETECT

IC101 µPC358G2 (1/2) — AMP

IC101 µPC358G2 (1/2) — IRIS CONTROL

Q553 BUFFER · Q550 BUFFER · Q551 BUFFER · Q552 LPF · Q501 BUFFER · Q503 LEVEL SHIFT · Q504 LEVEL SHIFT · Q102, Q103 REF VOLTAGE · Q101 IRIS CLOSE SW

FL501 4 FSC TRAP · FL502 · FL503 BPF

(See Page 97)

TO JK-37 BOARD CN554

CHECK POINT ARRAY

W614: 1 DTL OUT, 2 VAP OUT, 3 IRIS OUT, 4 Y-β IN, 5 DET C, 6 YH, 7 G DET, 8 AWB ADJ MODE, 9 E-VR ADJ MODE, 10 GND, 11 N.C.

CN504 (WHT): 1 RET Y IN (X), 2 RET Y IN (GND), 3 C OUT (X), 4 C OUT (GND), 5 Y OUT (X), 6 Y OUT (GND), 7 LINCS IN/OUT, 8 * (GND), 9 VTR START/STOP

CN505 (WHT): 1 RET Y OUT, 2 GND, 3 EVF 12V, 4 WB NG, 5 L LA, 6 GAIN LED

R622 560, R623 560, R624 560

Q601 INVERTER — Q601 DTC144EK, R601 47k, D601 1S2835, R602 10k

Q602 INVERTER — Q602 DTC144EK, D602 RD9.1MB1

IC603 S-8054ALR RESET — R603 10k, C601 4.7 16V TA

L602 120μH, C605 47 16V AL, R615 0

IC601 MB89797 CAMERA SYSTEM CONTROL

1 R COMP, 2 B COMP, 4 CAM ON, 8 D-D CON ON, 9 X601 32KHz, 10 X602 8MHz, 11 C606 27p CH, 12 C607 27p CH, 13 C640 16p, 14 C641 16p, 15 Vss, 16 RESET, 17 C608 0.1μF, 18 LOW LIGHT, 19 E² PROM DO, 20 NTSC/PAL, 21 EVR ADJ/NOR, 22 AWB ADJ/NOR, 23 E² CS, 24 E² CLK

25 E-SHUT. STB, 26 LLA, 27 GAIN LED, 28 WB NG, 29 N.C., 30 E² PROM RDY/BUSY, 31 E² DI, 32 IRIS CLOSE

33 PG IO, 34 VD, 35 WINDOW, 36 HD, 37 EXT. ROM, 38 SIA, 39 SDA, 40 SCKA, 41 DAC LD

EVR: SCKA, SDA, SIA

42 Vcc, 43 Vss, 44 E-SHUT SW, 45 EDIT+VFD, 46 SENS SW, 47 WB SW, 48 V-MUTE, 49 B CONT, 50 R CONT, 51 DA Vss, 52 DA Vcc, 53 VD, 54 N.C., 55 L OUT, 56 L IN, 57 A Vss, 58 AV R⊕, 59 A Vcc, 60 SHUT MODE

AWB: B CONT, R CONT; LINCS: L OUT, L IN

R607 10k, R608 10k, R609 12k, R606 12k

C603 0.047μF, C604 47 16V AL, L601 120μH

R610 0, R619 0

IC602 MSM16911 MEMORY

IC602 MSM16911: 1 CS, 2 CLK, 3 DI, 4 DO, 5 GND, 6 ORG, 7 RDY/BUSY, 8 Vcc

R605 0, R620 10k, R621 10k

R658 0, R660 0, C637 0.1μF, C638 0.1μF

R625 0, R627 2200, R628 2200, R629 2200, R630 2200, R631 0, R632 0, R626 3.3k

C613 47p, C614 47p, C615 47p, C616 47p

C651 0.1, Q651 2SC1623, R651 10k, D651 1S2835

R564 10k, R565 10k, C584 0.1μF

CN508 (WHT): 1 WB POSI, 2 GND, 3 CAM ON CONT

CN506 (WHT): 1 EDIT+VF DISP, 2 E-SHUTT. SW, 3 GND

(See Page 93) TO SW-84 BOARD W921

CN507 (WHT): 1 SENS POSI, 2 GND

(See Page 94) TO SW-85 BOARD W911

W003: 1 D-D CON ON

MR-18 BOARD

CN651: 1 WB POSI, 2 GND, 3 UNREG +12V, 4 CAM ON

TO SW-86 BOARD W901

(See Page 94)

R657 3.3k

IC652 TC4538BF MMV

21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31

Q601 INVERTER
Q602 INVERTER
Q601 DTC144EK
R601 47k
D601 1S2835
R602 10k
Q602 DTC144EK
D602 RD9.1MB1
IC603
S-8054ALR
RESET
IC603 S-8054ALR
R603 10k
V OUT
V IN
GND
C601 4.7 16V TA
R615 0
AV R
A Vcc
SHUT MODE
R607 10k
R608 10k
R609 12k
R606 12k
E-SHUT SW
EDIT+VFD
SENS SW
WB SW
Vss
C603 0.047 F
C604 47 16V AL
Vcc
L601 120μH
DAC LD
EVR
SCKA
SDA
SIA
EXT. ROM
R610 0
R619 0
HD
WINDOW
VD
PG IO
E² DI
IRIS CLOSE
IC602
MSM16911
MEMORY
IC602 MSM16911
CS
Vcc
CLK
RDY/BUSY
DI
ORG
DO
GND

W931 (WHT)
WHT RETURN Y IN 1
— GND 2
(WHT) GRY EVF 12V 3
GRY WB NG 4
GRY LLA LED 5
GRY GAIN LED 6
C931 470/16V
CN934
VIEW FINDER
(See Page 101)
TO VF CONNECTOR CN001
F901 400MA
(See Page 95)
TO JK-37 BOARD CN955
W932 (WHT)
BLK REC ALARM 1
GRY GND 2
EV-2 BOARD

● Signal path
➡ :REC Y SIGNAL
⇨ :PB Y SIGNAL
➡ :REC CHROMA SIGNAL

CN508 (WHT)
1 WB POSI WHT
2 GND GRY
3 CAM ON CONT GRY
CN506 (WHT)
1 EDIT+VF DISP BLK
2 E-SHUTT. SW GRY
3 GND GRY
(See Page 93)
TO SW-84 BOARD W921
CN507 (WHT)
1 SENS POSI RED
2 GND GRY
(See Page 94)
TO SW-85 BOARD W911

W003
1 D-D CON ON

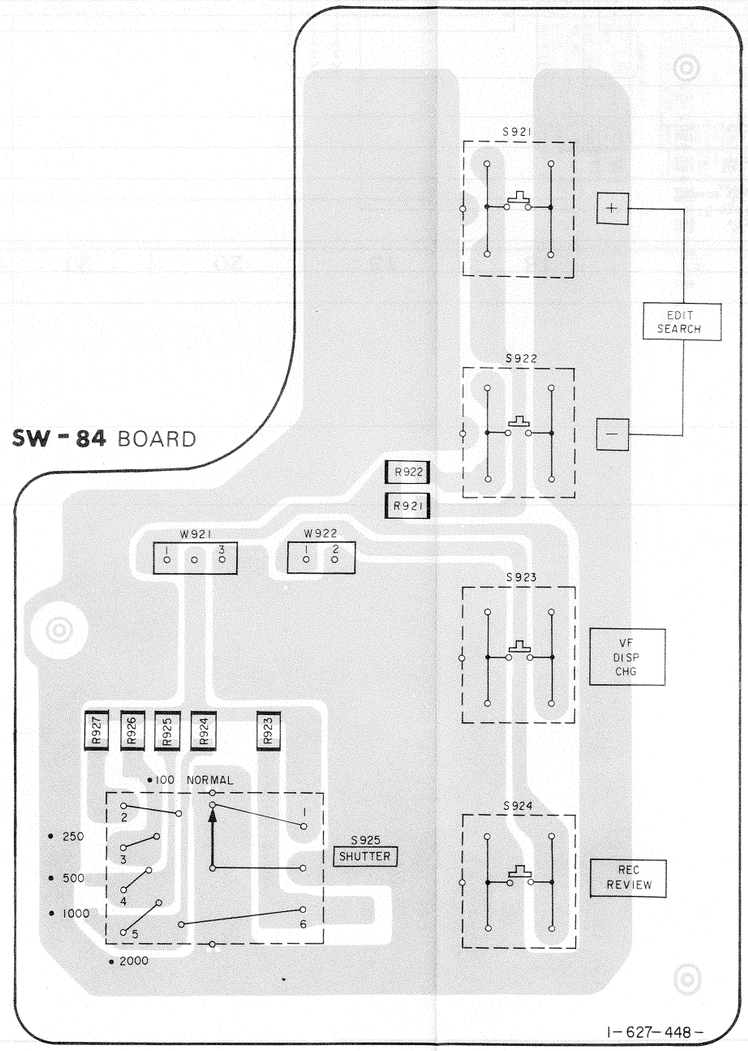
MR-18 BOARD
D653 RD4.7M
R650 1.5k
R655 2200
D654 1S2835
R656 180k
C654 1
R652 47k
C652 0.1
Q652 2SC1623
IC651
S-8054 ALR
D-D CON ON
V IN
V OUT
GND
R653 56k
C653 0.1
D652 1S2835
W002
1 D-D CON ON
R654 10k
IC652
TC4538BF
MMV
R657 3.3k
TP002
W652
1 WB POSI WHT
2 GND WHT
3 CAM ON CONT GRY
CN651
GRY CAM ON 4
GRY UNREG +12V 3
GRY GND 2
BLK WB POSI 1
TO SW-86 BOARD W901
(See Page 94)

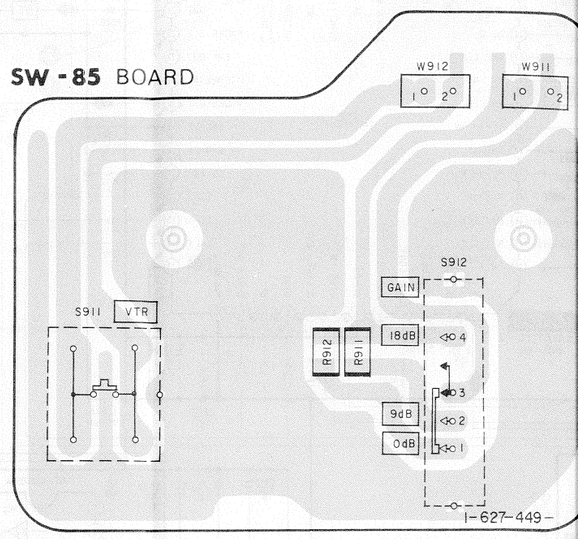
EM-3 EV-2 MR-18

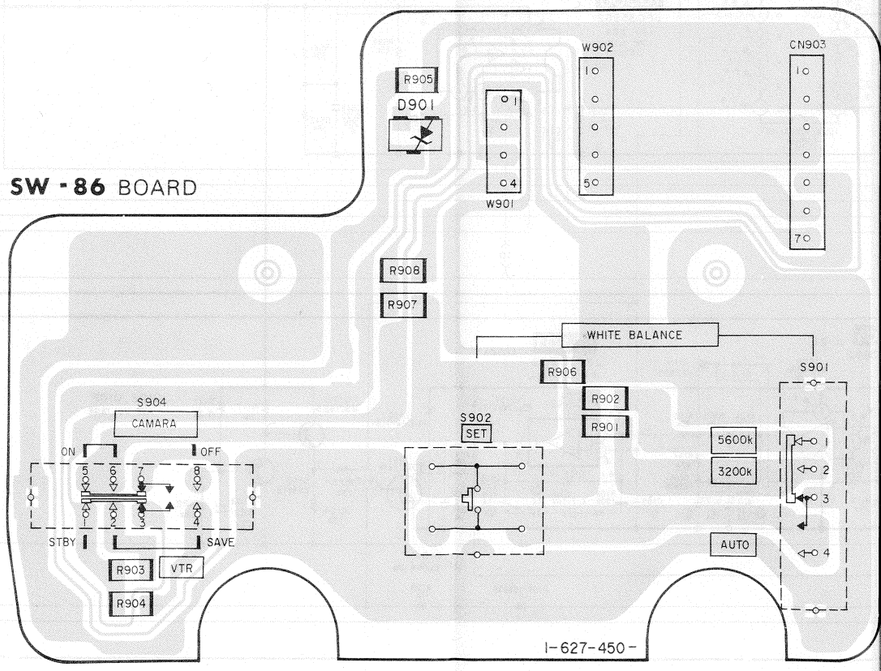
JK-37 (MIC JACK, 32PIN CONNECTOR), SW-84 (SHUTTER/EDIT/REC REVIEW SW), SW-85 (START/STOP, GAIN SW), SW86 (CAMERA POWER SW, WHITE BALANCE SW) PRINTED WIRING BOARD

— Ref. No. JK-37 BOARD : 2000 series, SW-84, SW-85, SW-86 BOARDS : 3000 series —

CAMERA BLOCK

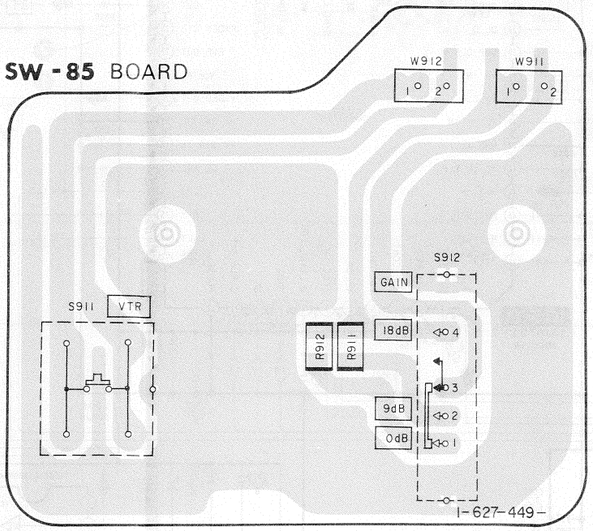


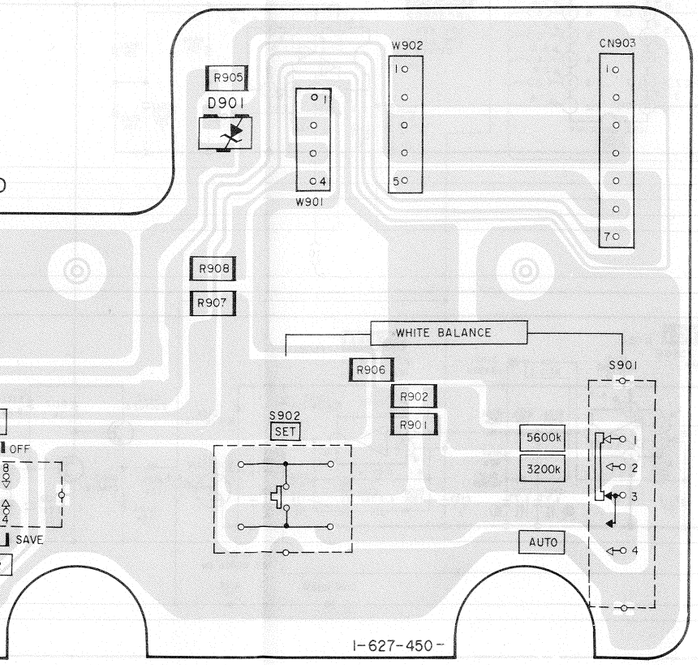




G BOARD

SW-85 BOARD

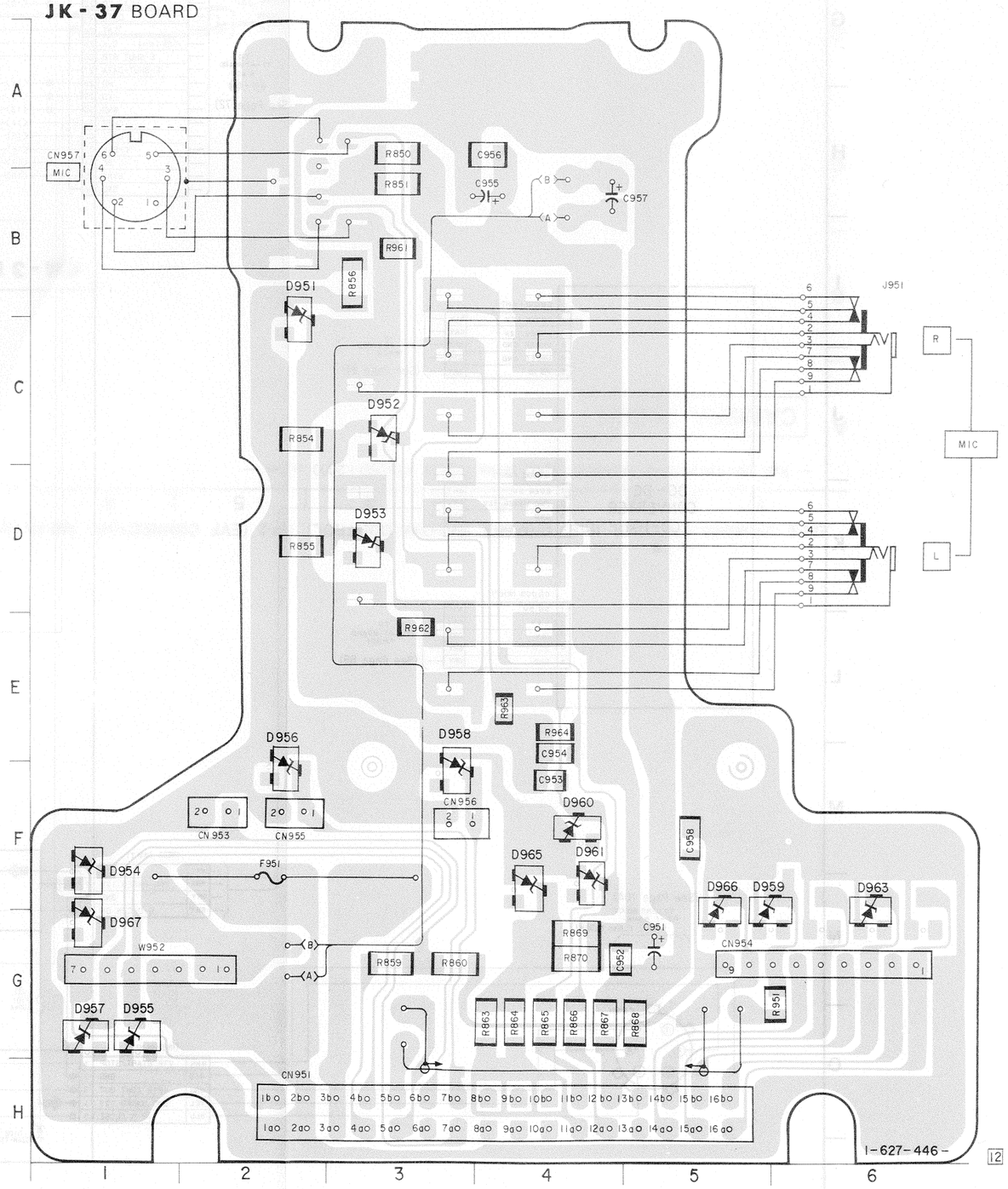




JK-37 BOARD

CN951	H-2
CN953	F-2
CN954	G-6
CN955	F-2
CN956	F-3
CN957	A-1
D951	B-2
D952	C-3
D953	D-3
D954	F-1
D955	G-1
D956	E-2
D957	G-1
D958	F-3
D959	F-5
D960	F-4
D961	F-4
D962	F-6
D963	F-6
D964	F-6
D965	F-4
D966	F-5
D967	G-1

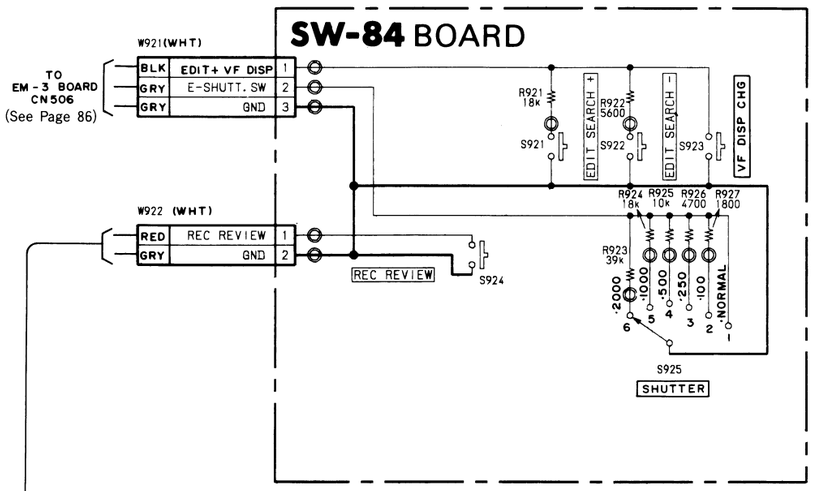
JK-37 BOARD

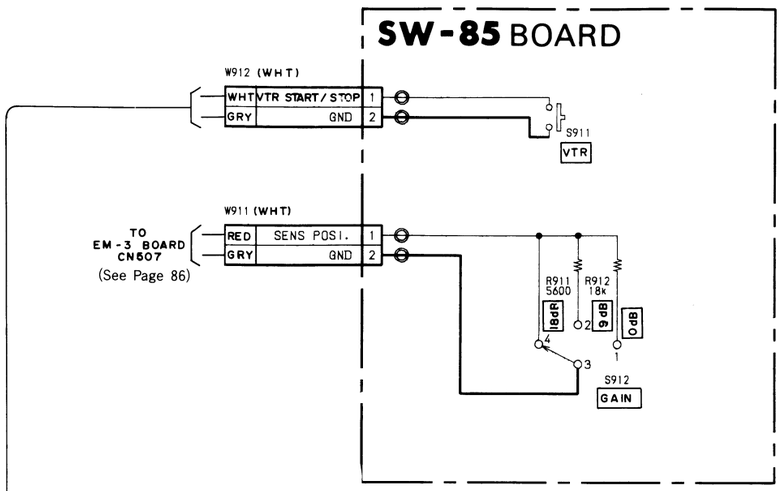


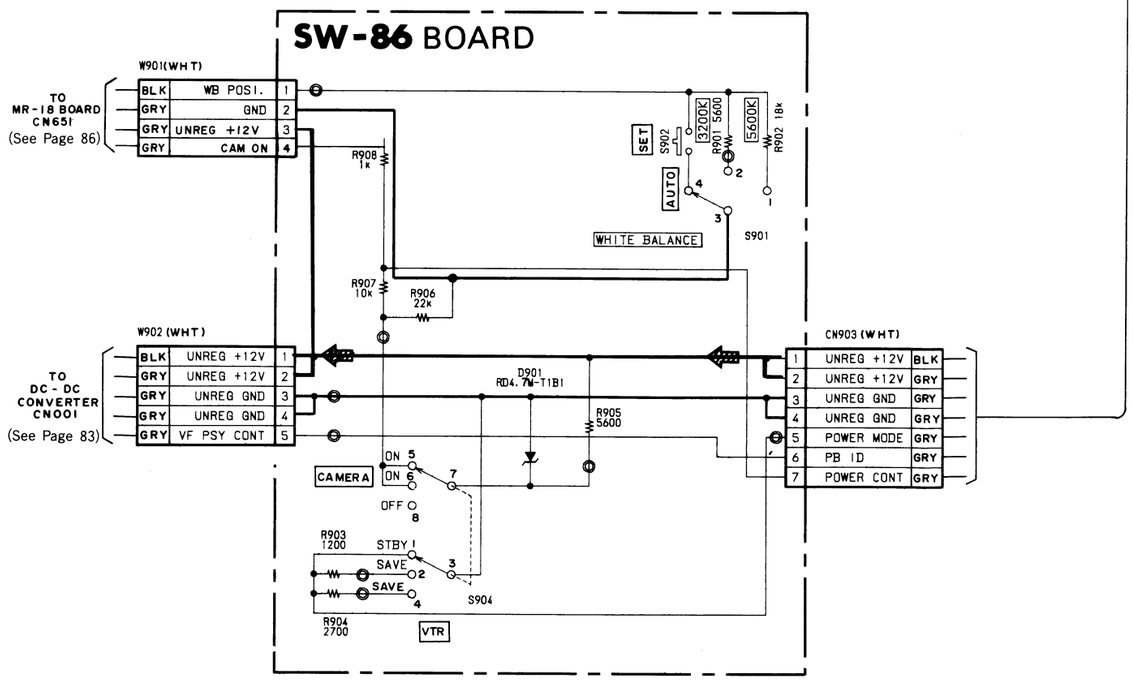
JK-37 (MIC JACK, 32PIN CONNECTOR), SW-84 (SHUTTER/EDIT/REC REVIEW SW), SW-85 (START/STOP, GAIN SW), SW86 (CAMERA POWER SW, WHITE BALANCE SW) SCHEMATIC DIAGRAM

— Ref. No. JK-37 BOARD : 2000 series, SW-84, SW-85, SW-86 BOARDS : 3000 series —

CAMERA BLOCK







TE BALANCE SW) SCHEMATIC DIAGRAM

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

SW-85 BOARD

W912 (WHT)
WHT VTR START/STOP 1
GRY GND 2
S911 VTR

W911 (WHT)
RED SENS POSI. 1
GRY GND 2
R911 5600 8dB
R912 18k 6dB
8P0
S912 GAIN

SW-86 BOARD

WB POSI. 1
GND 2
REG +12V 3
CAM ON 4
R908 1k
SET S902
3200K
R901 5600
5600K
R902 18k
AUTO
WHITE BALANCE S901
R907 10k
R906 22k
UNREG +12V 1
UNREG +12V 2
UNREG GND 3
UNREG GND 4
PSY CONT 5
D901 RD4.7M-T1B1
R905 5600
CAMERA
ON 5
ON 6
7
OFF 8
R903 1200
STBY
SAVE
SAVE
S904
R904 2700
VTR

CN903 (WHT)
1 UNREG +12V BLK
2 UNREG +12V GRY
3 UNREG GND GRY
4 UNREG GND GRY
5 POWER MODE GRY
6 PB ID GRY
7 POWER CONT GRY

JK-37 BOARD

W952 (WHT)
BLK UNREG +12V 1
GRY UNREG +12V 2
GRY UNREG GND 3
GRY UNREG GND 4
GRY POWER MODE 5
GRY PB ID 6
GRY POWER CONT 7

C957 47 16V

CN953 (WHT)
WHT VTR START/STOP 1
GRY GND 2
D954 RD12M-B2
R859 0
R860 0

CN955 (WHT)
BLK REC ALARM 1
GRY GND 2
TO EV-2 BOARD W932
(See Page 87)

CN956 (WHT)
RED REC REVIEW 1
GRY GND 2

R856 0

CN957
MIC
GND 6
MIC L 5
MIC R 4
GND 3
Vcc 2
1

R851 0
R961 1.5k (1/10W)
R850 0
R962 1.5k (1/10W)
C956 1000p B
C955 47 10V
R870 0
R869 0
C951 47 10V
C952 1000p
D965 RD12M-B2
D951 RD12M-B2
J951(1/2)
R
MIC
L
D953 RD12M-B2
D952 RD12M-B2
R854 0
R855 0
C958 0.1 F

20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

JK-37 BOARD

(WHT)
NREG +12V 1
NREG +12V 2
UNREG GND 3
UNREG GND 4
OWER MODE 5
PB ID 6
OWER CONT 7

(HT)
R START/STOP 1
GND 2

(HT)
REC ALARM 1
GND 2

(HT)
EC REVIEW 1
GND 2

ND 6
IC L 5
IC R 4
ND 3
cc 2
1

F951 1.25V 3.15A
C957 47 16V
D954 RD12M-B2
R859 0
R860 0
D967 RD12M-B2
D955 RD12M-B2
R856 0
D958 RD12M-B2
R951 0 (1/10W)
D957 RD12M-B2
D956 RD12M-B2
D959 RD12M-B2
R863 0
R851 0
R961 1.5k (1/10W)
R850 0
R962 1.5k(1/10W)
C956 1000p B
C955 47 10V
R870 0
R869 0
C951 47 10V
C952 1000p
D965 RD12M-B2
R963 3.3k (1/10W)
R964 3.3k (1/10W)
C954 1000p
C953 1000p B
R864 0
R865 0
R866 0
R867 0
R868 0
D961 RD12M-B2
D960 RD12M-B2
D951 RD12M-B2
J951(1/2)
D953 RD12M-B2
D952 RD12M-B2
R854 0
R855 0
J951(1/2)
D963 RD12M-B2
C958 0.1 F
D966 RD12M-B2

CN951

1a	FRAME GND	
1b	POWER CONT	
2a	UNREG GND	
2b	UNREG GND	
3a	UNREG +12V	
3b	UNREG +12V	
4a	VTR START/STOP	
4b	POWER MODE	
5a	* (GND)	
5b	LINCS IN/OUT	
6a	*BATT ALM	
6b	REC ALARM	
7a	PB ID	
7b	REC REVIEW	
8a	LINE L (GND)	
8b	LINE L (X)	
9a	LINE R (X)	
9b	LINE R (GND)	
10a	LINE /MIC	
10b	N.C.	
11a	MIC 9V	
11b	MIC L (X)	
12a	MIC R (X)	
12b	MIC GND	
13a	MIX LINE (GND)	
13b	MIX LINE (X)	
14a	Y OUT (GND)	
14b	Y OUT (X)	
15a	C OUT (GND)	
15b	C OUT (X)	
16a	RET Y IN (X)	
16b	RET Y IN (GND)	

TO VTR BLOCK CN-34 BOARD CN904
(See Page 113)

CN954 (WHT)

1	RET Y IN (X)	WHT	(WHT)
2	RET Y IN	—	
3	C OUT (X)	RED	(RED)
4	C OUT (GND)	—	
5	Y OUT (X)	WHT	(YEL)
6	Y OUT (GND)	—	
7	LINCS IN/OUT	VIO	
8	* (GND)	GRY	
9	VTR START/STOP	WHT	

TO EM-3 BOARD CN504
(See Page 85)

- **Signal path**
  - ➡ :REC Y SIGNAL
  - ⇨ :PB Y SIGNAL
  - ➡ :REC CHROMA SIGNAL
  - ➡ :REC AUDIO SIGNAL

Note (Schematic Diagram)

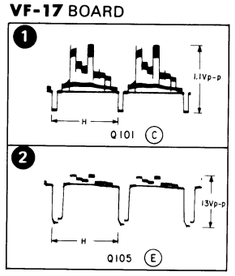
- All resistor are in ohms, chip resistor are 1/8W (JK-37 board) and 1/10W (SW-84, SW-85, SW-86 boards) unless otherwise noted.

VF-17 (MONITOR VIDEO PROCESS, H SIZE, H LINEARITY), VF-18 (H/V DRIVE), SW-98 (TALLY SW, BRIGHT/CONT VR), LW-2 (WB LED), LW-3 (REC LED), LW-4 (GAIN UPLED), LW-5 (LOW LIG

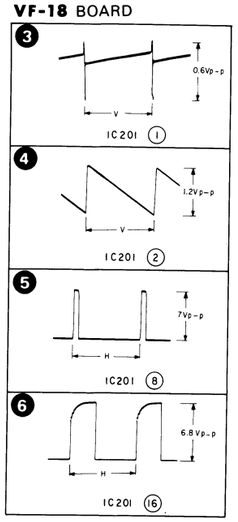
— Ref. No. VF-17, VF-18 BOARDS : 4000 series, SW-98 BOARD : 4400 series, LW-2 BOARD : 4500 series, LW-3 BOARD : 4600 series, LW-4 BOARD : 4700 series, LW-5 BOARD : 4800 series, LW-6 BOARD : 4900 series —

CAMERA BLOCK

VF-17 BOARD



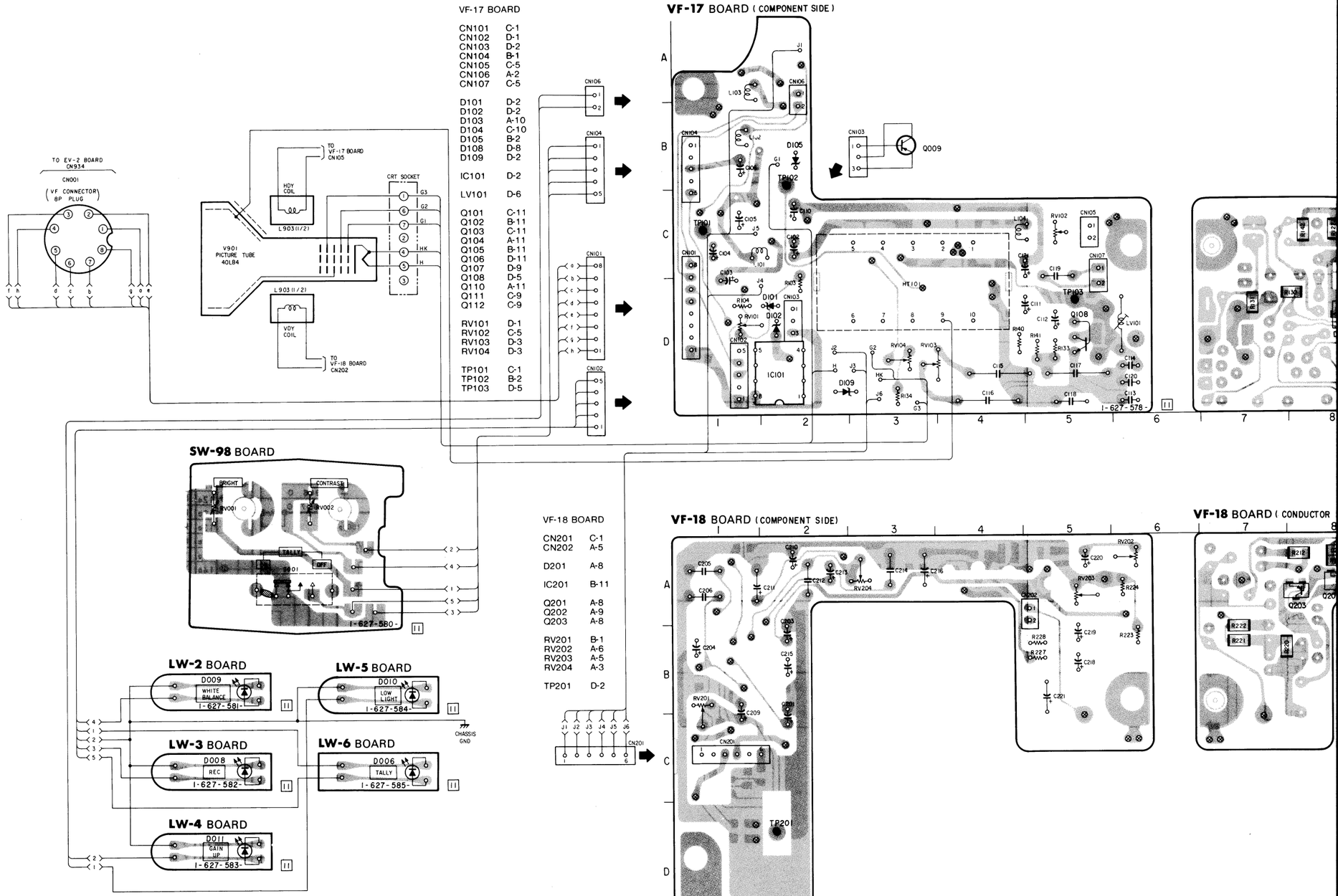
VF-18 BOARD



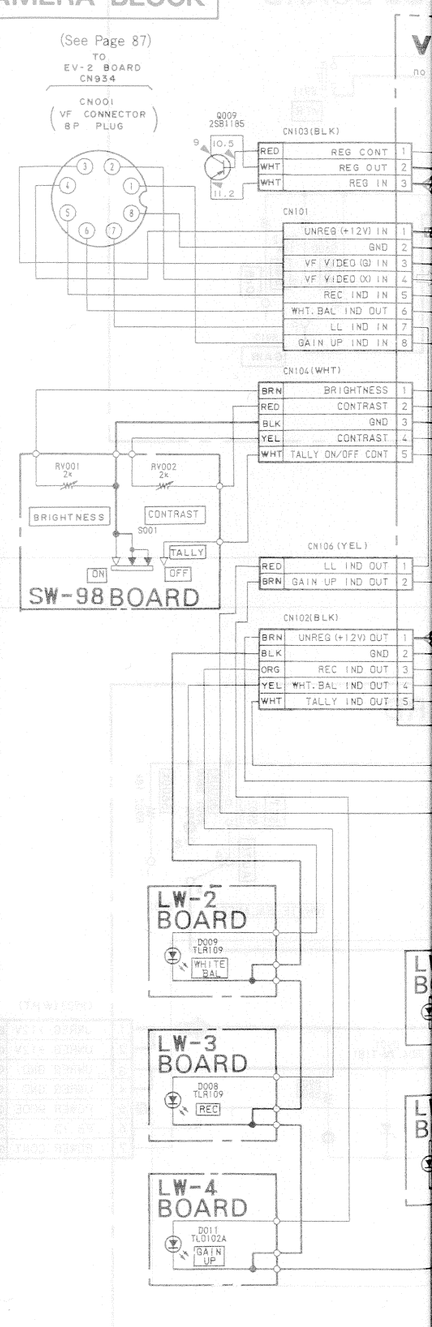
Note (Printed Wiring Board)

- ▩ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.

Note	
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.



VF-17 BOARD
CN101 C-1
CN102 D-1
CN103 D-2
CN104 B-1
CN105 C-5
CN106 A-2
CN107 C-5
D101 D-2
D102 D-2
D103 A-10
D104 C-10
D105 B-2
D108 D-8
D109 D-2
IC101 D-2
LV101 D-6
Q101 C-11
Q102 B-11
Q103 C-11
Q104 A-11
Q105 B-11
Q106 D-11
Q107 D-9
Q108 D-5
Q110 A-11
Q111 C-9
Q112 C-9
RV101 D-1
RV102 C-5
RV103 D-3
RV104 D-3
TP101 C-1
TP102 B-2
TP103 D-5
VF-17 BOARD (COMPONENT SIDE)
VF-17 BOARD (CONDUCTOR SIDE)
TO VF-17 BOARD CN105
HDY COIL
VDY COIL
CRT SOCKET
TO VF-18 BOARD CN202
CONTRAST
RV002
BRIGHTNESS
TALLY
S001
ON
OFF
I-627-580-
LW-5 BOARD
D010
LOW LIGHT
I-627-584-
LW-6 BOARD
D006
TALLY
I-627-585-
CHASSIS GND
VF-18 BOARD
CN201 C-1
CN202 A-5
D201 A-8
IC201 B-11
Q201 A-8
Q202 A-9
Q203 A-8
RV201 B-1
RV202 A-6
RV203 A-5
RV204 A-3
TP201 D-2
VF-18 BOARD (COMPONENT SIDE)
VF-18 BOARD (CONDUCTOR SIDE)
I-627-578-
I-627-579-


CAMERA BLOCK
(See Page 87)
TO EV-2 BOARD CN934
CN001 (VF CONNECTOR 8P PLUG)
Q009 2SB1185
CN103(BLK)
RED REG CONT 1
WHT REG OUT 2
WHT REG IN 3
CN101
UNREG (+12V) IN 1
GND 2
VF VIDEO (G) IN 3
VF VIDEO (X) IN 4
REC IND IN 5
WHT. BAL IND OUT 6
LL IND IN 7
GAIN UP IND IN 8
CN104(WHT)
BRN BRIGHTNESS 1
RED CONTRAST 2
BLK GND 3
YEL CONTRAST 4
WHT TALLY ON/OFF CONT 5
RV001 2k
RV002 2k
BRIGHTNESS
CONTRAST
S001
TALLY
ON
OFF
SW-98 BOARD
CN106(YEL)
RED LL IND OUT 1
BRN GAIN UP IND OUT 2
CN102(BLK)
BRN UNREG (+12V) OUT 1
BLK GND 2
ORG REC IND OUT 3
YEL WHT. BAL IND OUT 4
WHT TALLY IND OUT 5
LW-2 BOARD
D009 TLR109
WHITE BAL
LW-3 BOARD
D008 TLR109
REC
LW-4 BOARD
D011 TLO102A
GAIN UP

D WIRING BOARD

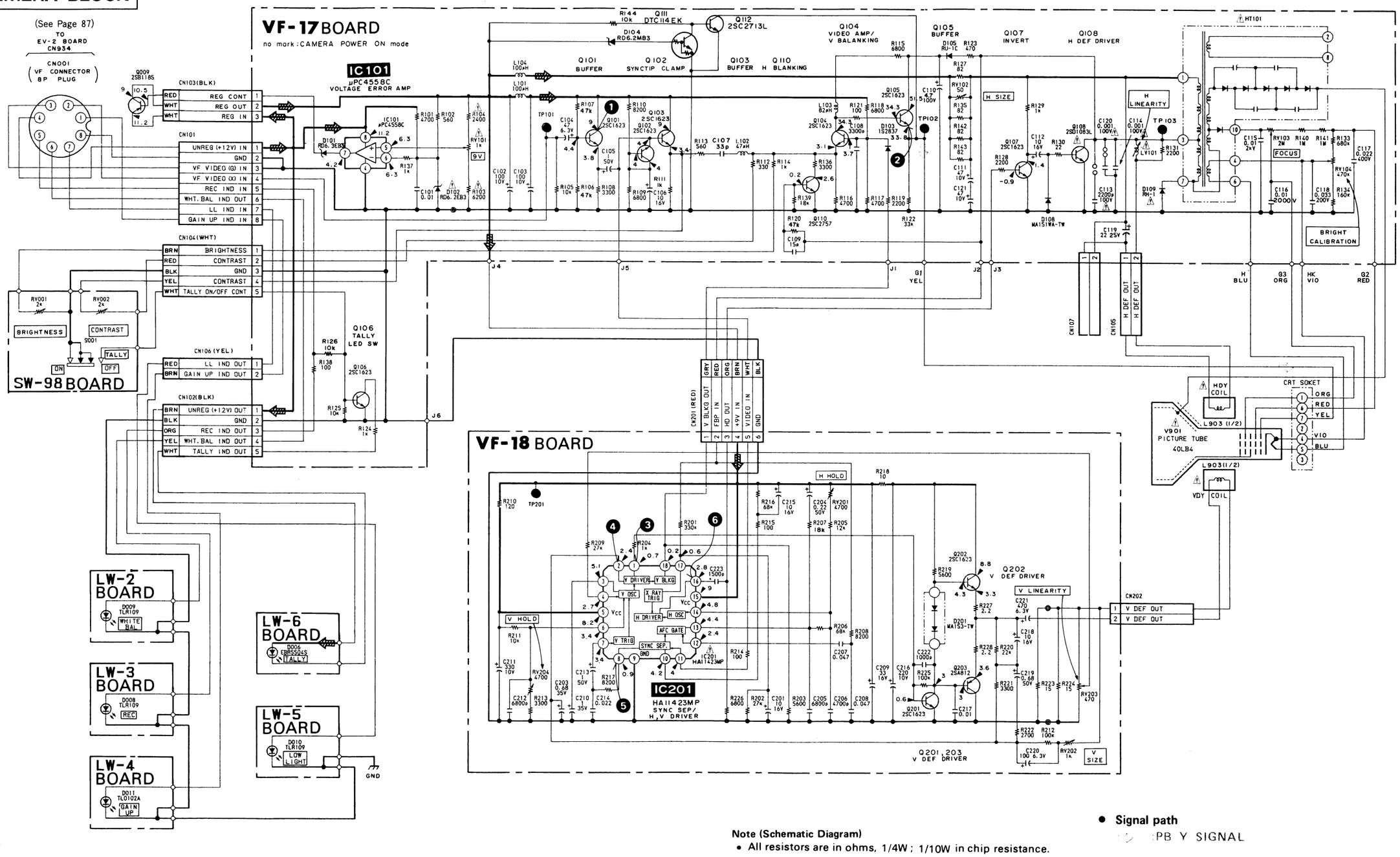
(CONDUCTOR SIDE)

1-627-578-11

1-627-579-11

— Ref. No. VF-17, VF-18 BOARDS : 4000 series, SW-98 BOARD : 4400 series, LW-2 BOARD : 4500 series, LW-3 BOARD : 4600 series, LW-4 BOARD : 4700 series, LW-5 BOARD : 4800 series, LW-6 BOARD : 4900 series —

CAMERA BLOCK

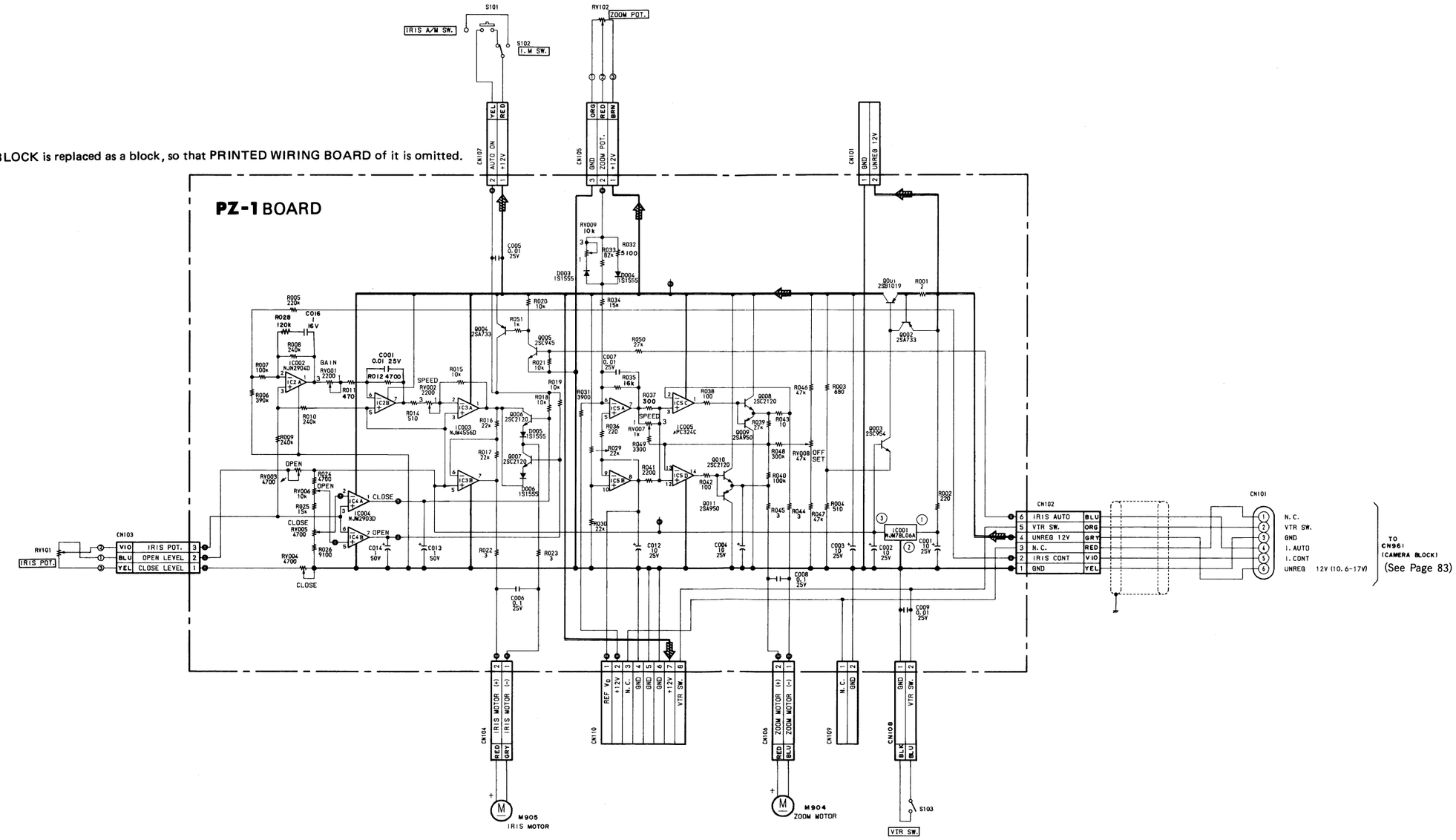


Note (Schematic Diagram)

- All resistors are in ohms, 1/4W ; 1/10W in chip resistance.

- **Signal path**
  - PB Y SIGNAL

LENS BLOCK is replaced as a block, so that PRINTED WIRING BOARD of it is omitted.



CAMERA CAMERA

DT-72 (TIMING GENERATOR, RESISTOR DRIVE) SCHEMATIC DIAGRAM

DT-72 BOARD no mark; CAMERA POWER ON mode

IC101 CXD1149R TIMING GENERATOR

IC102 CXA1065N V DRIVE

IC103 CXA1065N V DRIVE

IC104 CXB0026AM H DRIVE

IC105 CXB0026AM H DRIVE

Q101 V SUB-C REG

Q102 V SUB-C REG

Q103 V SUB-Y REG

Q104 V SUB-Y REG

Q105 +3V REG

Q106 +10V REG

Q107 10V REG

Q108-111 PG DRIVE

Q112 10V REG

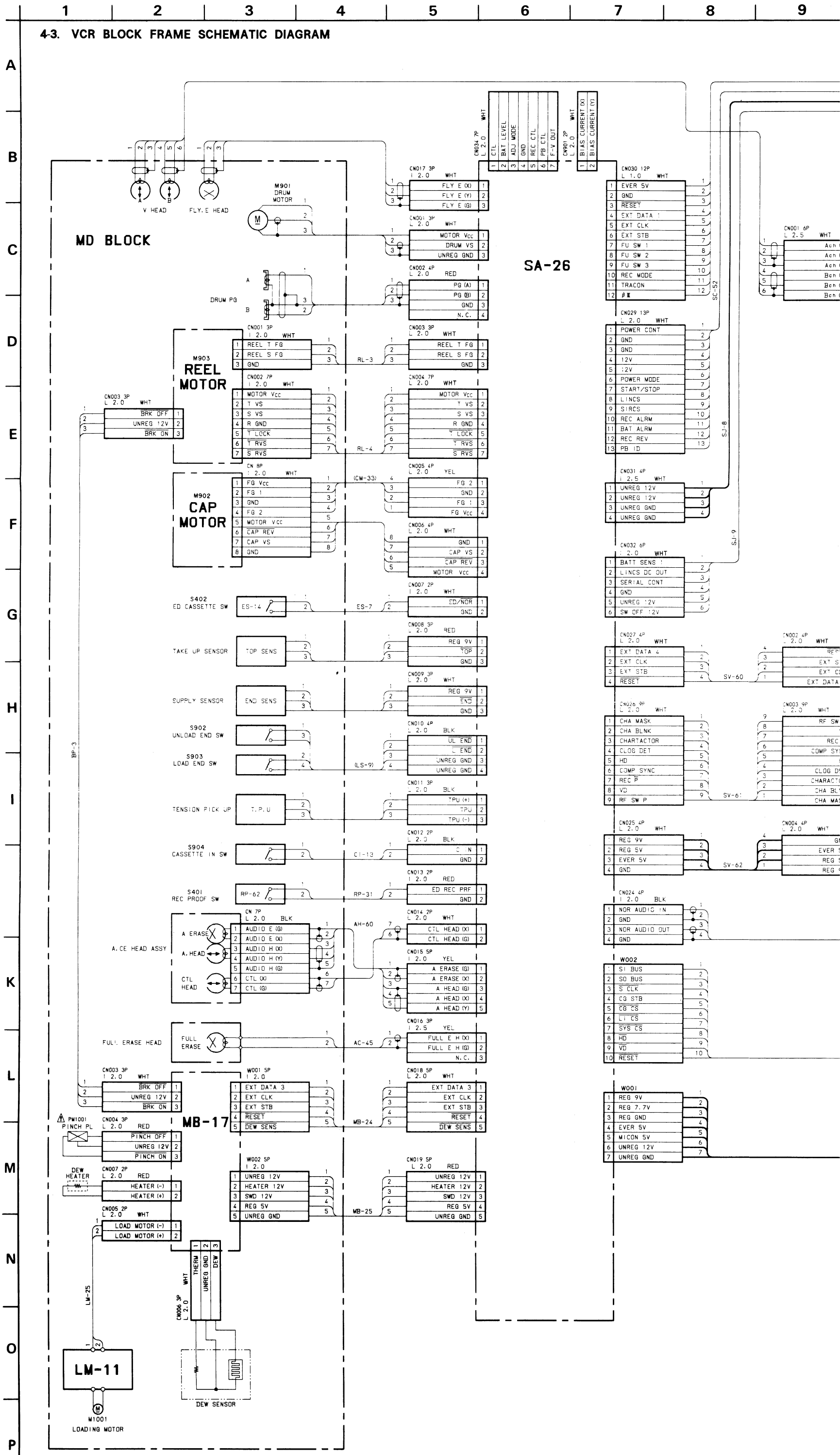
Q113-116 PG DRIVE

Q117 +10V REG

Note (Schematic Diagram)

- All resistor are in ohms, chip resistor are 1/16W unless otherwise noted.

4-3. VCR BLOCK FRAME SCHEMATIC DIAGRAM



VR-19

AD-14

CN010 4P
L 2.5 EL WHT
1 RF SW P (1)
2 GND
3 RF OUT
4 RF SW P (2)

CN001 6P
L 2.5 WHT
1 Ach (X)
2 Ach (Y)
3 Ach (G)
4 Bch (X)
5 Bch (Y)
6 Bch (G)

CN008 6P
I 2.0 BLK
1 Y OUT (X)
2 Y OUT (G)
3 C OUT (X)
4 C OUT (G)
5 VIDEO OUT (X)
6 VIDEO OUT (G)

VJ-30

VC-25

CN007 6P
I 2.0 RED
1 CAMERA Y IN
2 GND
3 CAMERA C IN
4 GND
5 RTN VIDEO
6 GND

LB-3

CN001 2P
L 2.5 WHT
1 LI 3V
2 GND

CN011 11P
L 2.0 RED
1 GND
2 LINE L IN
3 GND
4 LINE R IN
5 LINE/MIC
6 MIC 9V
7 MIC L IN
8 GND
9 MIC R IN
10 GND
11 MIX LINE OUT

AC-6

CN010 4P
I 2.0 RED
1 AUDIO L OUT
2 GND
3 AUDIO R OUT
4 GND

AJ-14

CN009 5P
I 2.0 WHT
1 H.P. L OUT
2 GND
3 H.P. R OUT
4 AUDIO 9V
5 H.P. LEVEL

AJ-15

CN008 2P
I 2.0 WHT
1 MTR L
2 GND

LM-31 LEVEL METER (L)

CN007 2P
I 2.0 WHT
1 MTR R/BAT
2 GND

LM-32 LEVEL METER (R)

CN006 7P
L 2.0 BLK
1 RF SW P
2 GND
3 REC Bch IN
4 PB Bch OUT
5 GND
6 REC Ach IN
7 PB Ach OUT

VA-14

CN002 7P
L 2.0 BLK
1 RF SW P
2 GND
3 REC Bch OUT
4 PB Bch IN
5 GND
6 REC Ach OUT
7 PB Ach IN

CN005 9P
L 2.0 WHT
1 AF MUTE OUT
2 LINE MUTE OUT
3 AF PB OUT
4 AF REC P OUT
5 CHARGE CONT
6 START/STOP
7 EDIT IN
8 SHARPNESS
9 GND

VA-15

CN003 9P
L 2.0 WHT
1 GND
2 SHARPNESS
3 EDIT IN
4 START/STOP
5 CHARGE CONT
6 AF REC P IN
7 AF PB IN
8 LINE MUTE IN
9 AF MUTE IN

CN002 4P
L 2.0 WHT
1 RESET
2 EXT STB
3 EXT CLK
4 EXT DATA 4

SV-60

CN003 9P
L 2.0 WHT
1 RF SW P
2 VD
3 REC P
4 COMP SYNC
5 HD
6 CLOG DET
7 CHARACTOR
8 CHA BLNK
9 CHA MASK

SV-61

CN004 4P
L 2.0 WHT
1 GND
2 EVER 5V
3 REG 5V
4 REG 9V

SV-62

CN004 4P
I 2.0 BLK
1 NOR AUDIO OUT
2 GND
3 NOR AUDIO IN
4 GND

SA-64

CN005 10P
L 2.0 WHT
1 SI BUS
2 SO BUS
3 S CLK
4 CG STB
5 CG CS
6 LI CS
7 SYS CS
8 HD
9 VD
10 RESET

SA-65

CN006 7P
L 2.0 WHT
1 REG 9V
2 REG 7.7V
3 REG GND
4 EVER 5V
5 MICON 5V
6 UNREG 12V
7 UNREG GND

SA-66

CN501 12P
L 1.0 WHT
EVER 5V
GND
RESET
EXT DATA 1
EXT CLK
EXT STB
FU SW 1
FU SW 2
FU SW 3
REC MODE
TARCON
PB ID

CN901 13P
L 2.0 WHT
POWER CONT
GND
GND
12V
12V
POWER MODE
START/STOP
LINCS
SIRCS
REC ALRM
BAT ALRM
REC REV
PB ID

CN902 6P
L 2.0 WHT
CAMERA Y OUT
GND
CAMER C OUT
GND
RTN VIDEO
GND

CN903 11P
L 2.0 YEL
GND
LINE L IN
GND
LINE R IN
LINE/MIC
MIC 9V
MIC L IN
GND
MIC R IN
GND
MIX LINE OUT

CN801 4P
I 2.5 WHT
UNREG 12V
UNREG 12V
UNREG GND
UNREG GND

CN805 2P
I 2.0 WHT
LI 3V
GND

CN803 6P
I 2.0 RED
BATT SENS
LINCS DC
SERIAL CONT
GND
UNREG 12V
SW OFF 12V

CN804 5P
I 2.0 YEL
H.P. L OUT
GND
H.P. R OUT
AUDIO 9V
H.P. LEVEL

CN806 4P
I 2.0 WHT
Y OUT (X)
Y OUT (G)
C OUT (X)
C OUT (G)

CN851 2P
I 2.0 RED
VIDEO OUT (X)
VIDEO OUT (G)

CN852 4P
I 2.0 RED
AUDIO L OUT
GND
AUDIO R OUT
GND

SC-52

SJ-8

SJ-9

14 | 15 | 16 | 17 | 18 | 19 | 20 | 21

AD-14

CN011 11P
L 2.0 RED
1 GND
2 LINE L IN
3 GND
4 LINE R IN
5 LINE/MIC
6 MIC 9V
7 MIC L IN
8 GND
9 MIC R IN
10 GND
11 MIX LINE OUT
→ AC-6

CN010 4P
I 2.0 RED
1 AUDIO L OUT
2 GND
3 AUDIO R OUT
4 GND
→ AJ-14

CN009 5P
I 2.0 WHT
1 H.P. L OUT
2 GND
3 H.P. R OUT
4 AUDIO 9V
5 H.P. LEVEL
→ AJ-15

CN008 2P
I 2.0 WHT
1 MTR L
2 GND
LM-31
LEVEL METER (L)

CN007 2P
2.0 WHT
1 MTR R/BAT
2 GND
LM-32
LEVEL METER (R)

CN501 12P
L 1.0 WHT
1 EVER 5V
2 GND
3 RESET
4 EXT DATA 1
5 EXT CLK
6 EXT STB
7 FU SW 1
8 FU SW 2
9 FU SW 3
10 REC MODE
11 TARCON
12 βII
→ FU-64

CN901 13P
L 2.0 WHT
1 POWER CONT
2 GND
3 GND
4 12V
5 12V
6 POWER MODE
7 START/STOP
8 LINCS
9 SIRCS
10 REC ALRM
11 BAT ALRM
12 REC REV
13 PB ID
→ CN-34

CN904 32P
a1 FRAME GND
b1 POWER CONTROL
a2 GND (UNREG 12V)
b2 GND (UNREG 12V)
a3 UNREG 12V
b3 UNREG 12V
a4 START/STOP IN
b4 POWER MODE IN
a5 SIRCS IN
b5 LINCS (X)
a6 BAT ALARM OUT
b6 REC ALARM OUT
a7 PB ID OUT
b7 REC REVIEW IN
a8 AUDIO LINE L IN (G)
b8 AUDIO LINE L IN (X)
a9 AUDIO LINE R IN (G)
b9 AUDIO LINE R IN (X)
a10 LINE/MIC IN
b10 N.C.
a11 MIC 9V
b11 MIC L IN (X)
a12 MIC R IN (X)
b12 MIC R IN (G)
a13 MIX LINE OUT (G)
b13 MIX LINE OUT (X)
a14 Y IN (G)
b14 Y IN (X)
a15 CHROMA IN (G)
b15 CHROMA IN (X)
a16 RTN VIDEO OUT (X)
b16 RTN VIDEO OUT (G)

CN902 6P
L 2.0 WHT
1 CAMERA Y OUT
2 GND
3 CAMER C OUT
4 GND
5 RTN VIDEO
6 GND

CN903 11P
L 2.0 YEL
1 GND
2 LINE L IN
3 GND
4 LINE R IN
5 LINE/MIC
6 MIC 9V
7 MIC L IN
8 GND
9 MIC R IN
10 GND
11 MIX LINE OUT

CN801 4P
I 2.5 WHT
1 UNREG 12V
2 UNREG 12V
3 UNREG GND
4 UNREG GND

CN805 2P
I 2.0 WHT
1 LI 3V
2 GND
→ JK-35

CN803 6P
I 2.0 RED
1 BATT SENS I
2 LINCS DC
3 SERIAL CONT
4 GND
5 UNREG 12V
6 SW OFF 12V

CN804 5P
I 2.0 YEL
1 H.P. L OUT
2 GND
3 H.P. R OUT
4 AUDIO 9V
5 H.P. LEVEL

CN806 4P
I 2.0 WHT
1 Y OUT (X)
2 Y OUT (G)
3 C OUT (X)
4 C OUT (G)

J801 EXT DC IN
J802 CONTROL L
J803 PHONES
S901 POWER SW
J804 S VIDEO OUT

CN802 6P
I 2.5 WO WHT
1 BATT 12V IN
2 BATT 12V IN
3 BATT SENS 1
4 BATT SENS 2
5 BATT GND
6 BATT GND
BC-4
BATT CASE
BATT

CN851 2P
I 2.0 RED
1 VIDEO OUT (X)
2 VIDEO OUT (G)

CN852 4P
I 2.0 RED
1 AUDIO L OUT
2 GND
3 AUDIO R OUT
4 GND

→ JK-36
J851
VIDEO OUT
AUDIO(L) OUT
AUDIO(R) OUT

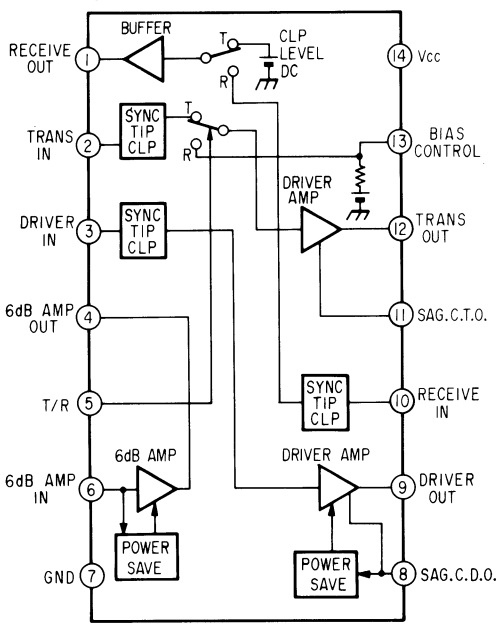
4-4. VCR BLOCK PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

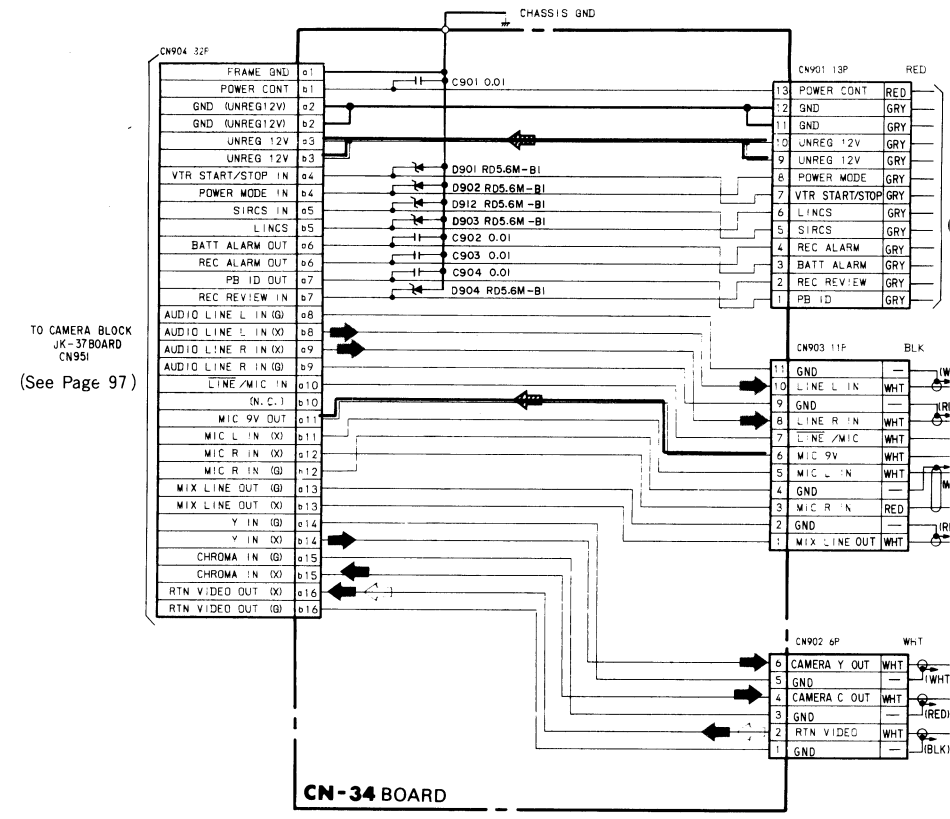
VR-19 (VIDEO/AUDIO RF SIGNAL PROCESS), CN-34 (32PIN CONNECTOR) SCHEMATIC DIAGRAM

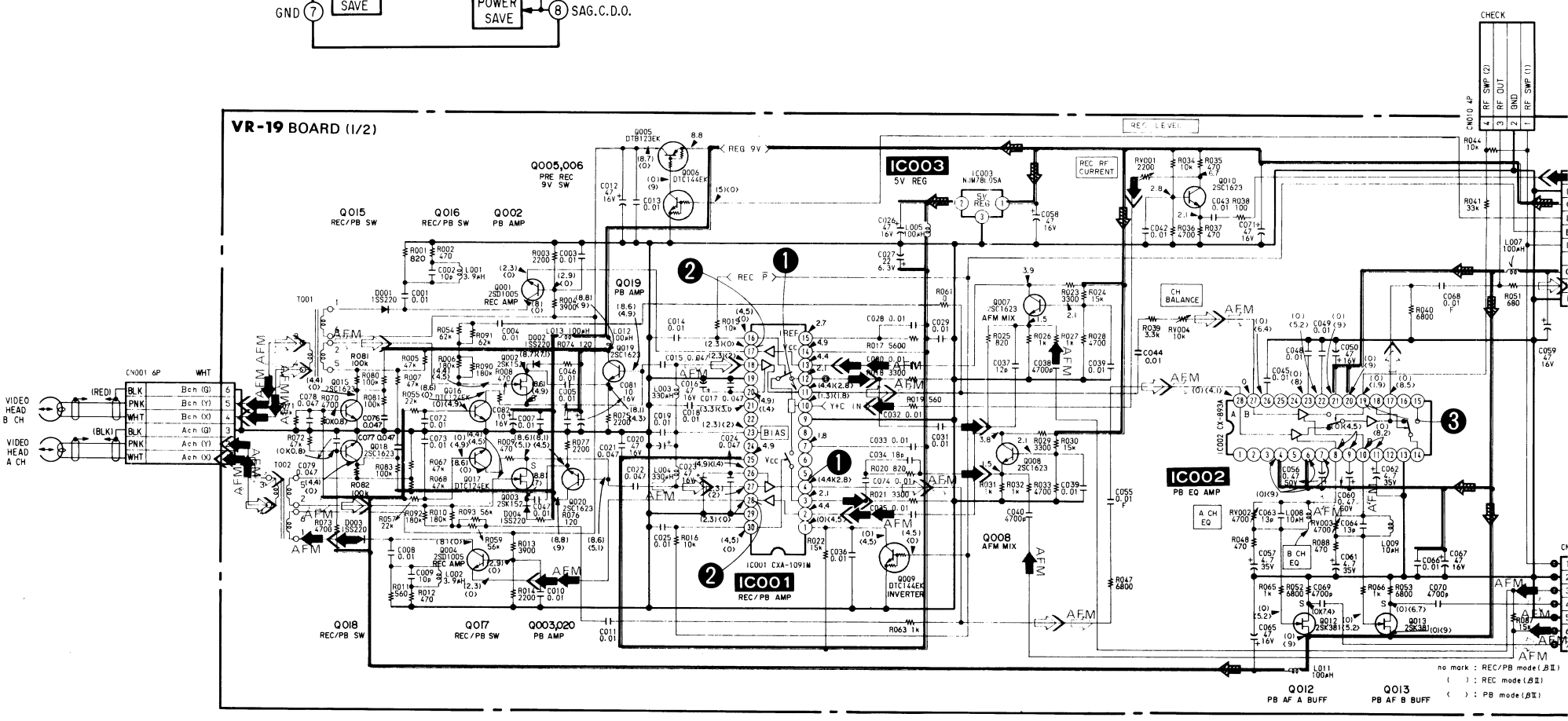
— Ref. No. VR-19, CN-34 BOARDS : 5000 series —

VCR BLOCK

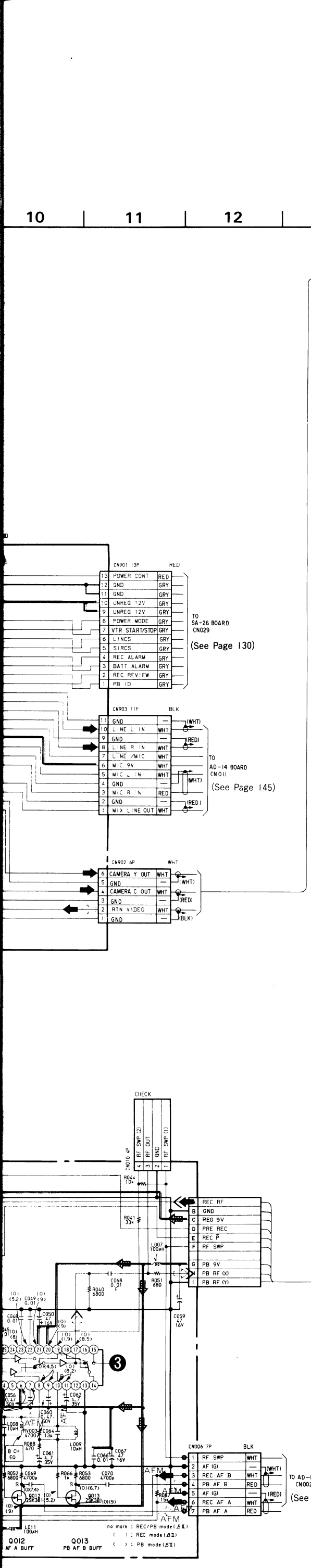
IC803
CX20095A

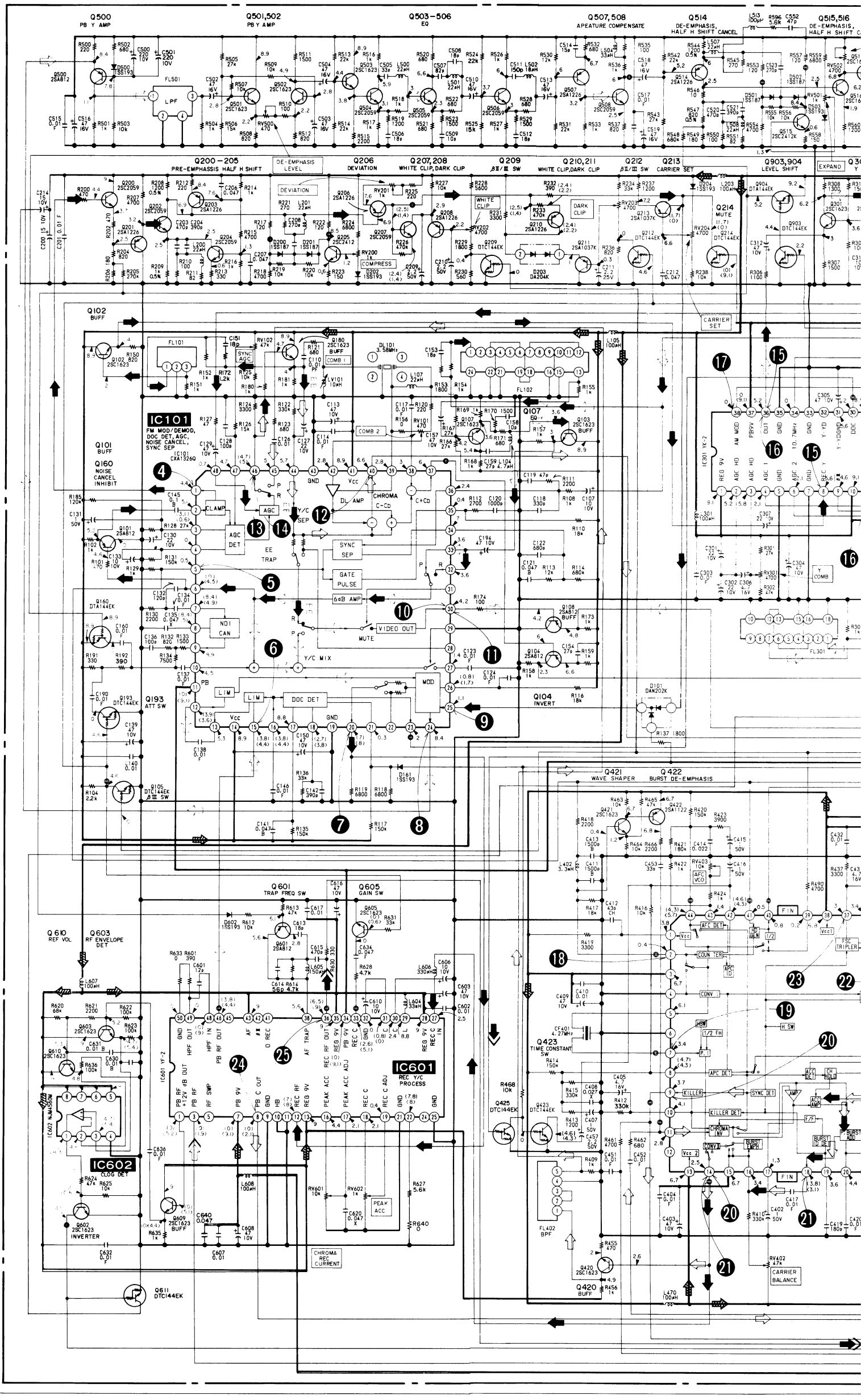






10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21

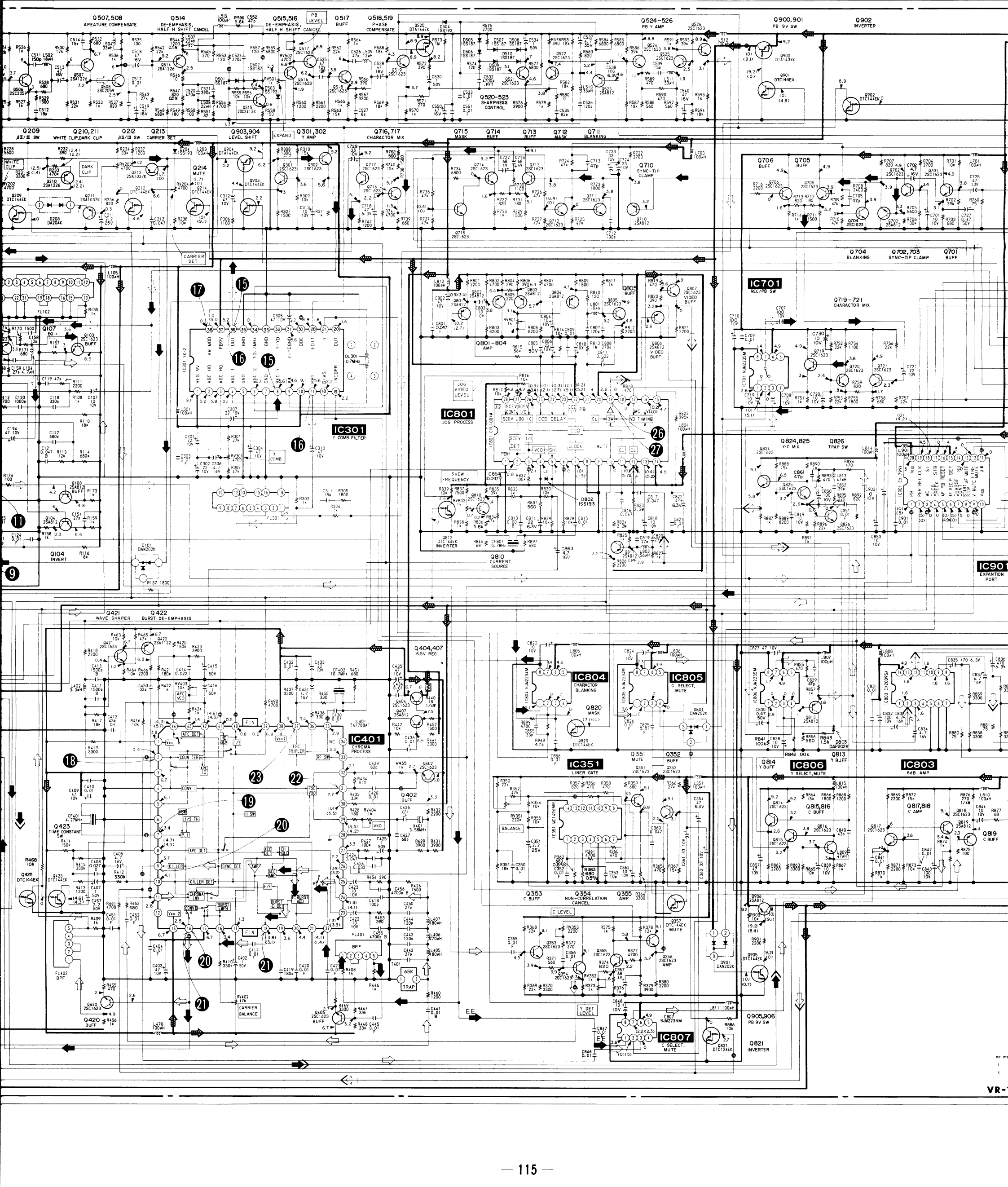




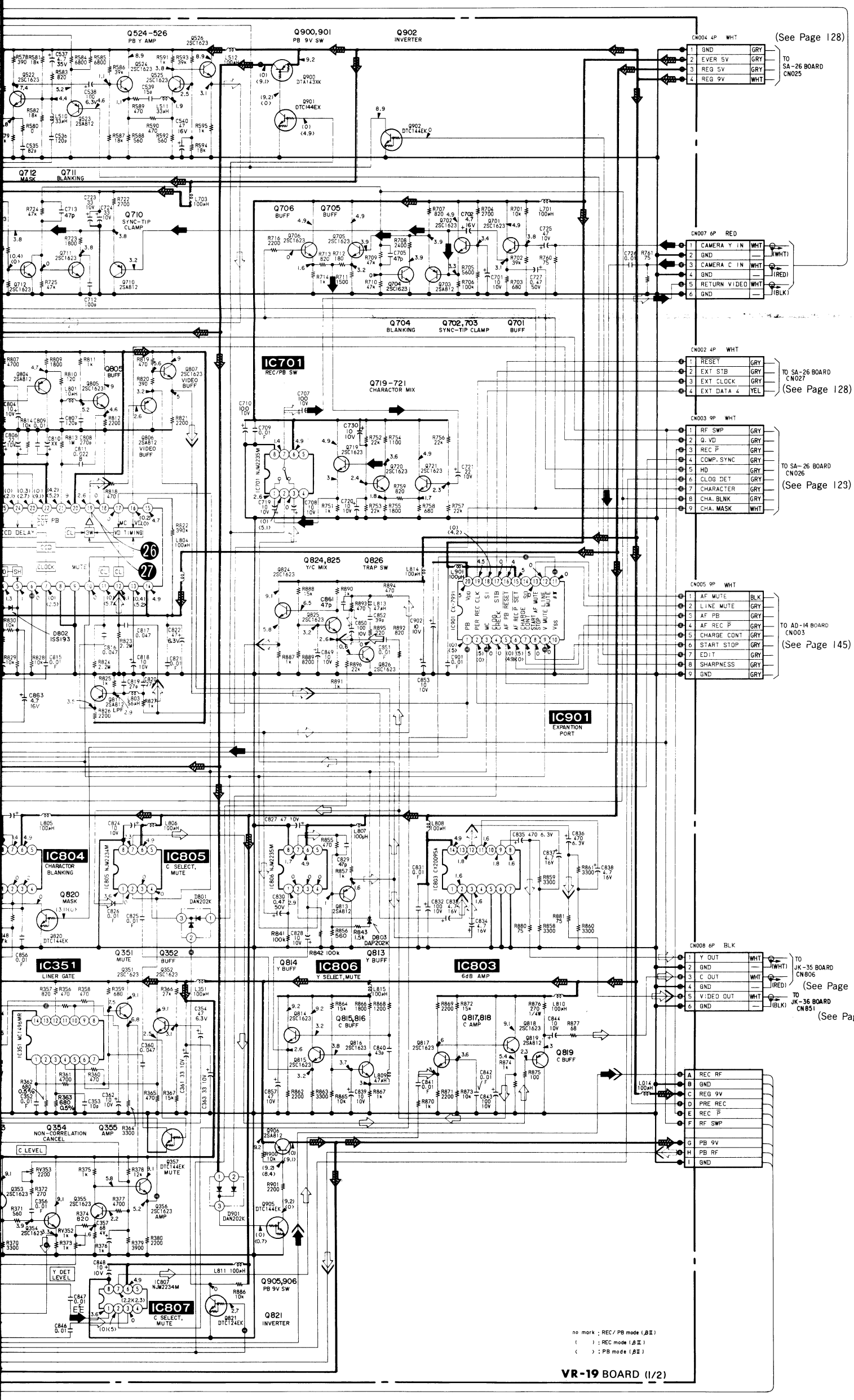
— 113 —

— 114 —

18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29



25 | 26 | 27 | 28 | 29 | 30 | 31 | 32



- **Signal path**
- :REC Y SIGNAL
- :PB Y SIGNAL
- :REC CHROMA SIGNAL
- :PB CHROMA SIGNAL
- :REC Y & CHROMA SIGNAL
- :PB Y & CHROMA SIGNAL
- :REC AUDIO SIGNAL
- :PB AUDIO SIGNAL

VR-19 **CN-34**

VR-19 (VIDEO/AUDIO RF SIGNAL PROCESS), CN-34 (32PIN CONNECTOR) PRINTED WIRING BOARD

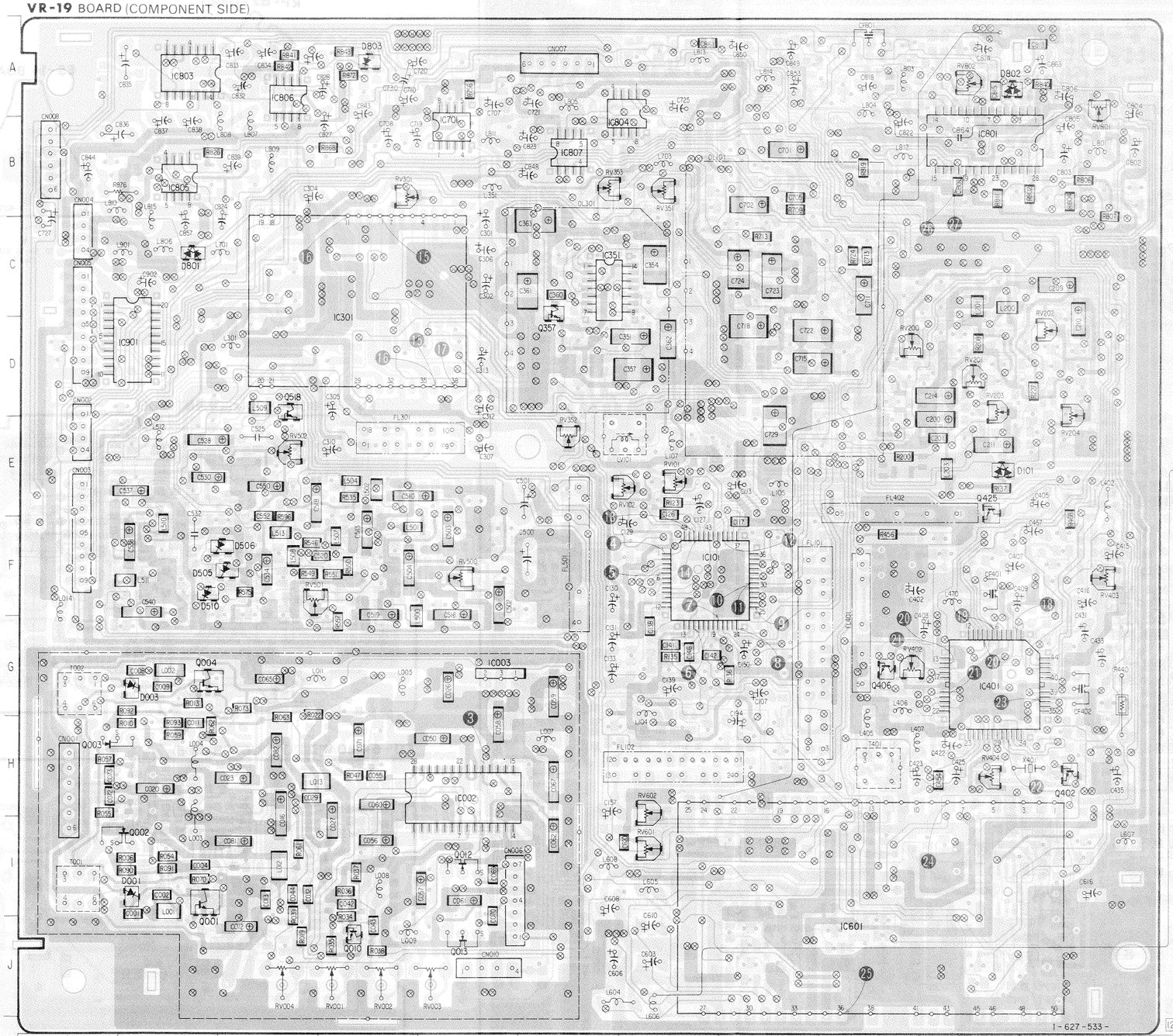
— Ref. No. VR-19, CN-34 BOARDS : 5000 series —

VCR BLOCK

VR-19 BOARD

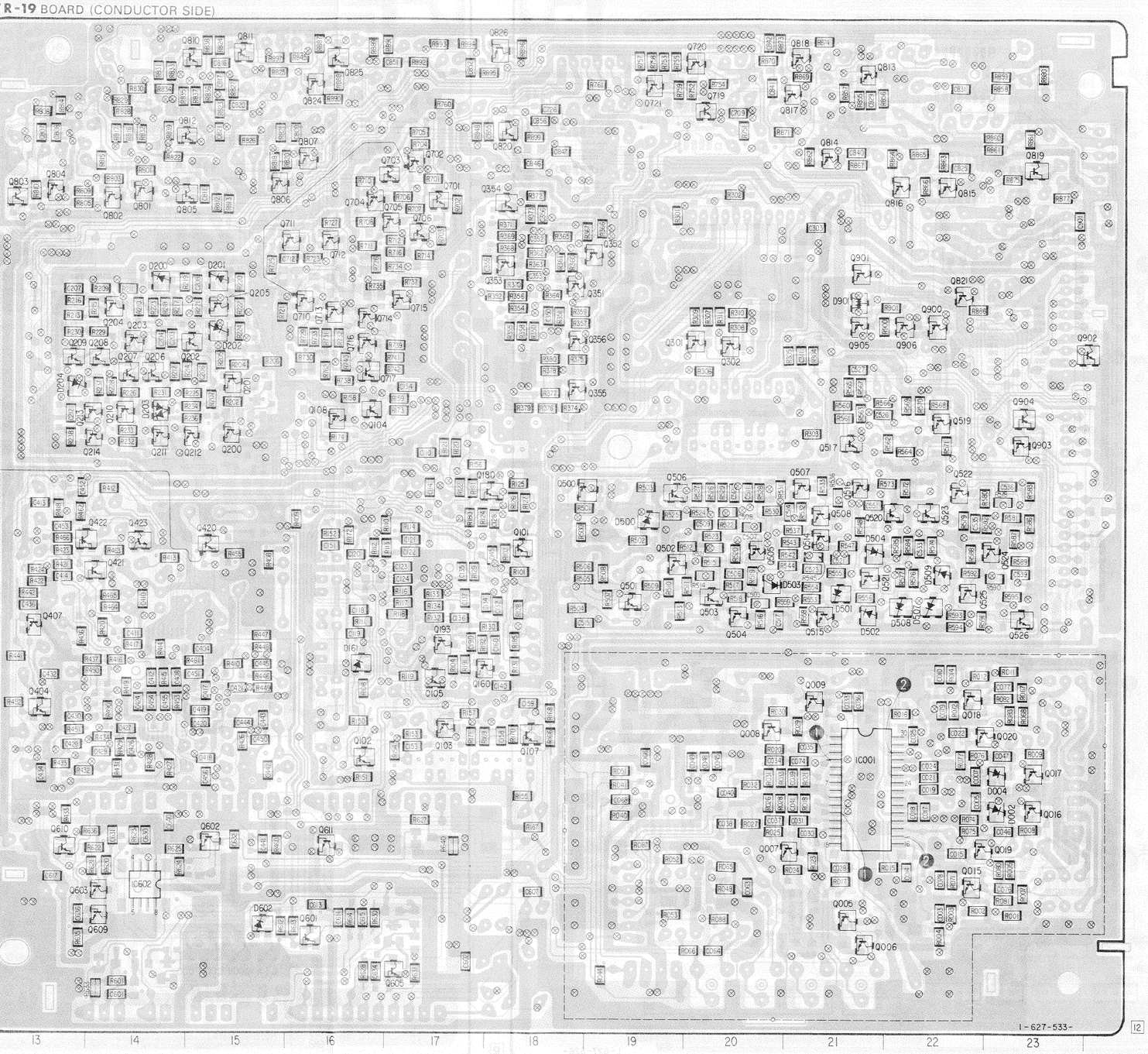
CN001	H-1	Q357	C-6
CN002	E-1	Q402	H-11
CN003	F-1	Q404	G-13
CN004	C-1	Q406	G-9
CN005	D-1	Q407	G-13
CN006	I-5	Q420	F-15
CN007	A-6	Q421	F-14
CN008	B-1	Q422	F-13
CN010	J-5	Q423	F-14
		Q425	E-10
D001	I-2	Q500	E-19
D002	H-23	Q501	F-19
D003	G-2	Q502	F-19
D004	H-23	Q503	F-20
D101	E-10	Q504	F-20
D161	G-16	Q505	F-20
D200	C-14	Q506	E-19
D201	C-15	Q507	E-21
D202	D-15	Q508	E-21
D203	D-14	Q514	F-21
D204	D-13	Q515	F-21
D500	F-19	Q516	E-21
D501	F-21	Q517	E-21
D502	F-21	Q518	D-3
D503	F-20	Q519	E-22
D504	F-21	Q520	E-22
D505	F-3	Q521	F-21
D506	F-3	Q522	E-22
D507	F-22	Q523	E-22
D508	F-22	Q524	F-23
D509	F-22	Q525	F-22
D510	F-2	Q526	G-23
D602	J-15	Q601	J-16
D801	C-2	Q602	I-15
D802	A-10	Q603	I-14
D803	A-4	Q605	J-17
D901	C-21	Q609	I-14
		Q610	I-13
IC001	H-21	Q611	I-16
IC002	H-5	Q701	B-17
IC003	G-5	Q702	B-17
IC101	F-7	Q703	B-17
IC301	C-4	Q704	B-16
IC351	C-6	Q705	C-17
IC401	G-10	Q706	C-17
IC601	J-9	Q710	C-16
IC602	I-14	Q711	C-16
IC701	B-5	Q712	C-16
IC801	B-10	Q713	C-16
IC803	A-2	Q714	C-16
IC804	A-7	Q715	C-17
IC805	A-2	Q716	D-16
IC806	A-3	Q717	D-16
IC807	B-6	Q719	A-20
IC901	D-2	Q720	A-20
		Q721	A-19
LV101	E-7	Q801	B-14
		Q802	B-14
Q001	I-2	Q803	B-13
Q002	I-2	Q804	B-13
Q003	H-1	Q805	B-14
Q004	G-2	Q806	B-15
Q005	I-21	Q807	B-16
Q006	J-21	Q810	A-15
Q007	I-21	Q811	A-15
		Q812	B-14
Q008	H-20	Q813	A-21
Q009	G-21	Q814	B-21
Q010	J-4	Q815	B-22
Q012	I-5	Q816	B-22
Q013	J-5	Q817	A-21
Q015	I-22	Q818	A-21
Q016	H-23	Q819	B-23
Q017	H-23	Q820	B-18
Q018	G-22	Q821	C-22
Q019	I-23	Q824	A-16
Q020	H-23	Q825	A-16
Q101	F-18	Q826	A-18
Q102	H-16	Q900	D-22
Q103	H-17	Q901	C-21
Q104	D-16	Q902	D-24
Q105	G-17	Q903	E-23
Q107	H-18	Q904	D-23
Q108	D-16	Q905	D-21
Q160	G-17	Q906	D-22
Q180	E-18		
Q193	G-17	RV001	J-4
Q200	E-15	RV002	J-4
Q201	D-15	RV003	J-5
Q202	D-15	RV004	J-3
Q203	D-14	RV101	E-7
Q204	C-14	RV102	E-7
Q205	C-15	RV200	D-9
Q206	D-14	RV201	D-10
Q207	D-14	RV202	D-11
Q208	D-14	RV203	D-10
Q209	D-13	RV204	D-11
Q210	D-14	RV301	B-4
Q211	E-14	RV351	B-7
Q212	E-15	RV352	E-6
Q213	D-14	RV353	B-6
Q214	E-14	RV402	G-9
Q215	D-15	RV403	F-11
Q301	D-20	RV404	H-10
Q302	D-20	RV500	F-5
Q351	C-18	RV501	F-3
Q352	C-19	RV502	E-3
Q353	C-18	RV601	I-7
Q354	B-18	RV602	H-7
Q355	D-18	RV801	A-11
Q356	D-18	RV802	A-10

VR-19 BOARD (COMPONENT SIDE)

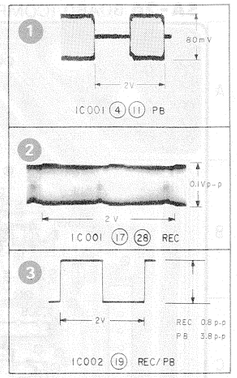


VR-19 BOARD (CONDUCTOR SIDE)

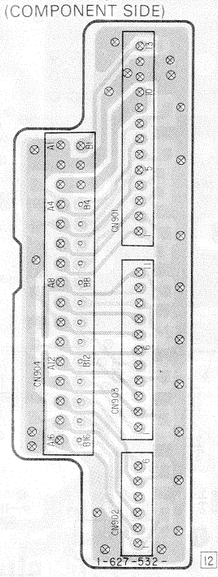
VR-19 BOARD (CONDUCTOR SIDE)



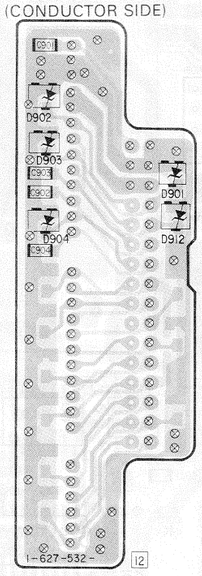
VR-19 BOARD (1/2)



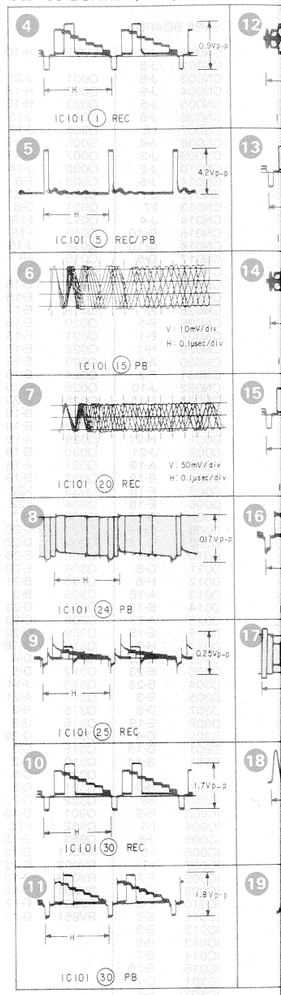
CN-34 BOARD (COMPONENT SIDE)

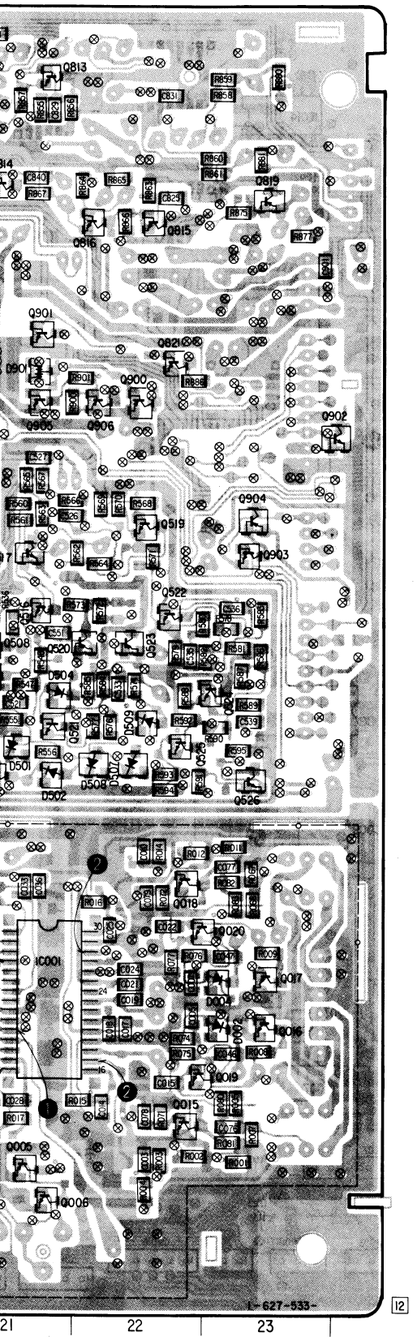


CN-34 BOARD (CONDUCTOR SIDE)

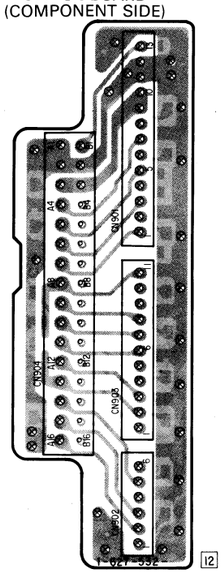


VR-19 BOARD (1/2)

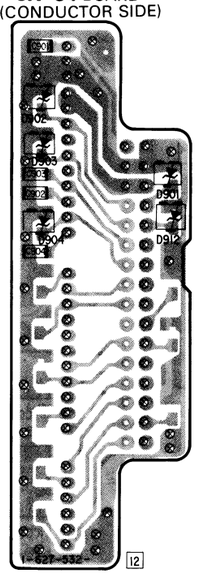




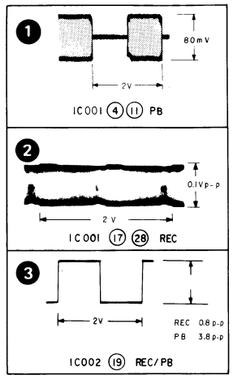
CN-34 BOARD
(COMPONENT SIDE)



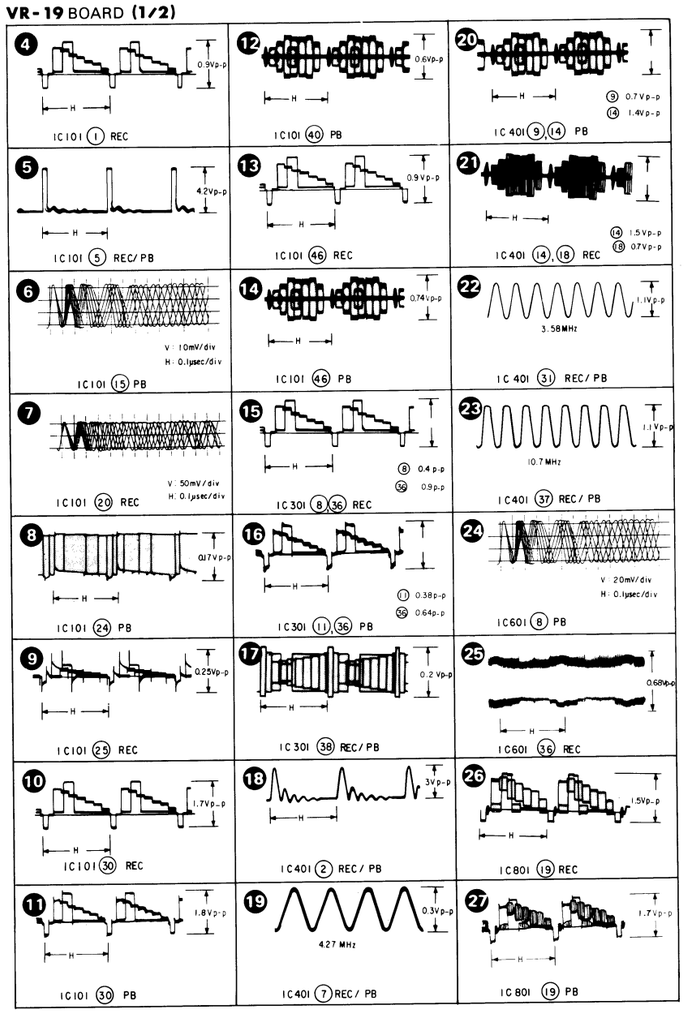
CN-34 BOARD
(CONDUCTOR SIDE)



VR-19 BOARD **(1/2)**



VR-19 BOARD **(1/2)**



Note (Schematic Diagram)

- Caution to be exercised when replacing chip components Do not reuse the removed components but use new components.
  Caution should be taken as the negative side of the tantalum capacitor is weak toward heat.
- All capacitors which resistance pressure 50V or less are not indicated except for chemicals and tantalums. The unit is all μF (p is pF).
- All resistors are in ohms, 1/10W in chip resistance
  kΩ =1000Ω and MΩ =1000kΩ
- All variable and adjustable resistors have characteristics curve B, which definition is omitted.
- ▭ : nonflammable resistor.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬ : B + line.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- The ● number is the reference number in the waveform diagram.
- ⋙ indicates the I/O direction of B lines (+, −).

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

Note (Printed Wiring Board)

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▒ : Pattern from the side which enables seeing.
- Pattern from the other side.
- The ● number is the reference number in the waveform diagram.

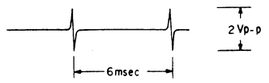
Note
Conductor side: Parts on the conductor side being seen from the conductor are stated.
Component side: Parts on the component side being seen from the component are stated.

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

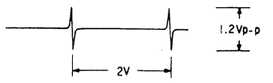
SA-26 (SERVO, SYSTEM CONTROL, NORMAL AUDIO), FU-64 (VTR FUNCTION SW), ES-14 (ED DETECT SWITCH), RP-62 (REC PROOF SW) PRINTED WIR

— Ref. No. SA-26, FU-64, ES-14, RP-62 BOARDS : 6000 series —

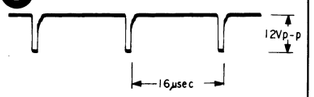
SA-26 BOARD

1


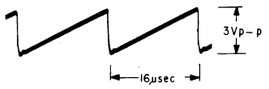
IC004 (1) REC/PB

2


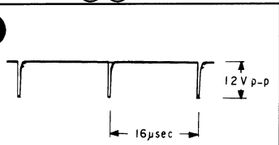
IC004 (8) REC/PB

3


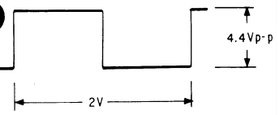
IC009 (1) REC/PB

4


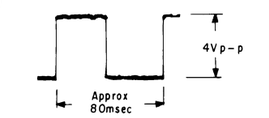
IC009 (3) (5) REC/PB

5


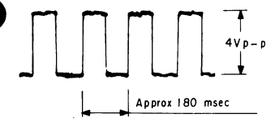
IC009 (7) REC/PB

6


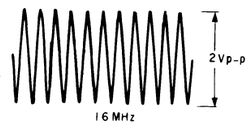
IC301 (11) REC/PB

7


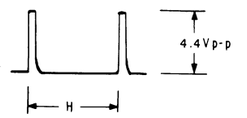
IC301 (20) REC/PB L500 TAPE TOP (βII)

8


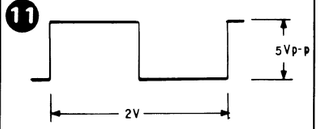
IC301 (21) REC/PB L500 TAPE TOP(βII)

9


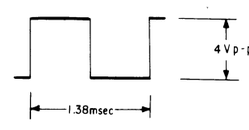
IC301 (34) REC/PB

10


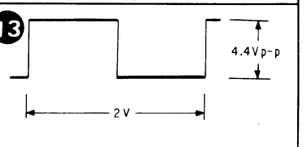
IC301 (58) REC/PB

11


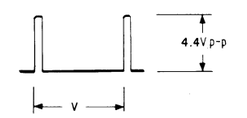
IC301 (59) PB

12


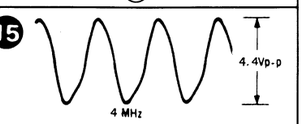
IC301 (62) REC/PB

13


IC301 (75) REC/PB

14


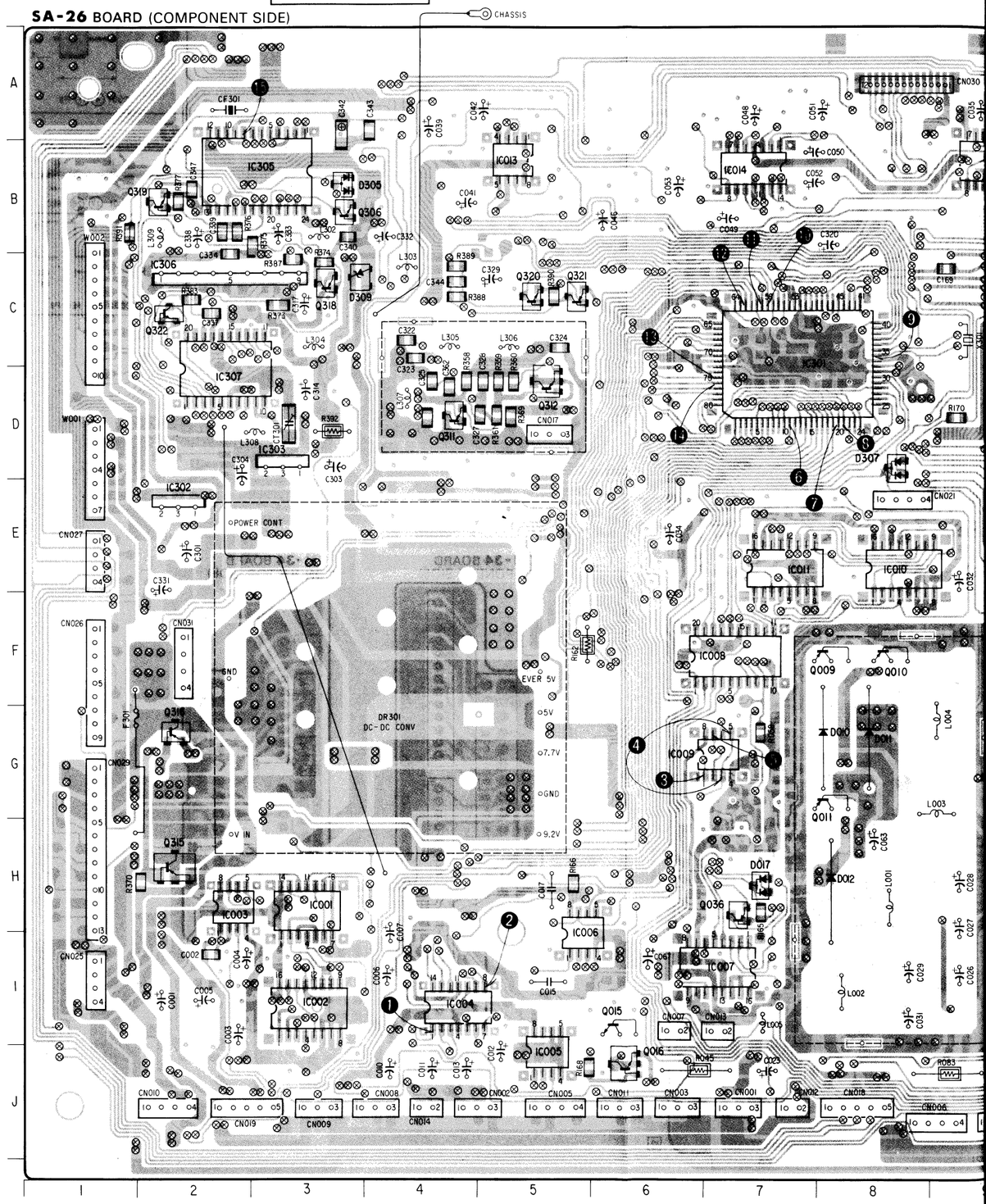
IC301 (76) REC/PB

15


IC305 (8) REC/PB

VCR BLOCK

SA-26 BOARD (COMPONENT SIDE)



SA-26 (SERVO, SYSTEM CONTROL, NORMAL AUDIO), FU-64 (VTR FUNCTION SW), ES-14 (ED DETECT SWITCH), RP-62 (REC PROOF SW) PRINTED WIRING BOARD

— Ref. No. SA-26, FU-64, ES-14, RP-62 BOARDS : 6000 series —

VCR BLOCK

SA-26 BOARD

CN001	J-7	LV951	H-10
CN002	J-5		
CN003	J-6	Q001	J-21
CN004	J-9	Q002	H-18
CN005	J-5	Q003	H-18
CN006	J-9	Q004	J-15
CN007	I-6	Q005	J-15
CN008	J-4	Q006	G-17
CN009	J-3	Q007	G-17
CN010	J-2	Q008	J-14
CN011	J-6	Q009	F-8
CN012	J-7	Q010	F-8
CN013	I-7	Q011	G-8
CN014	J-4	Q012	I-19
CN015	G-10	Q013	I-18
CN016	G-10	Q014	J-19
CN017	D-5	Q015	I-6
CN018	J-8	Q016	J-6
CN019	J-2	Q017	C-18
CN024	C-10	Q018	E-18
CN025	I-1	Q019	E-17
CN026	F-1	Q020	E-16
CN027	E-1	Q021	E-18
CN029	H-1	Q022	E-18
CN030	A-8	Q023	E-16
CN031	F-2	Q024	B-15
CN032	J-10	Q025	B-15
CN034	E-11	Q026	A-20
CN901	G-11	Q027	B-19
		Q028	B-18
D001	H-21	Q029	A-19
D002	J-21	Q030	B-19
D003	A-19	Q031	A-18
D004	B-19	Q032	B-18
D005	F-18	Q033	I-22
D006	E-18	Q034	I-22
D007	G-18	Q036	H-7
D008	G-17	Q301	E-20
D009	G-18	Q302	D-20
D010	G-8	Q303	E-20
D011	G-8	Q304	E-20
D012	H-8	Q305	B-21
D013	A-18	Q306	B-3
D014	B-17	Q307	D-21
D015	A-17	Q308	C-23
D016	E-18	Q309	C-22
D017	H-7	Q310	D-16
D302	B-23	Q311	D-4
D303	B-23	Q312	D-5
D304	B-23	Q313	J-14
D305	B-3	Q314	A-21
D307	D-8	Q315	H-2
D308	E-19	Q316	G-2
D309	C-4	Q317	G-22
D901	D-15	Q318	C-3
D951	G-14	Q319	B-2
		Q320	C-5
IC001	H-3	Q321	C-5
IC002	I-3	Q322	C-2
IC003	H-2	Q901	D-15
IC004	I-4	Q952	I-10
IC005	J-5	Q953	G-15
IC006	I-5	RV001	D-12
IC007	I-7	RV002	C-12
IC008	F-7	RV003	D-12
IC009	G-7	RV301	C-12
IC010	E-8	RV901	F-12
IC011	E-7	RV951	G-11
IC012	B-9		
IC013	B-5		
IC014	B-7		
IC015	B-10		
IC301	C-7		
IC302	E-2		
IC303	D-3		
IC304	D-22		
IC305	B-3		
IC306	C-2		
IC307	D-2		
IC901	E-10		

SA-26 BOARD (COMPONENT SIDE)

SA-26 BOARD (CONDUCTOR SIDE)

ard)

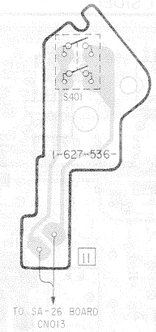
e side which enables seeing.
ear side.

rts on the conductor side being
en from the conductor are stated.
rts on the component side being
en from the component are stated.

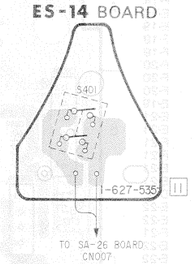
SERVO, SYSTEM CONTROL

SA-26 BOARD(CONDUCTOR SIDE)

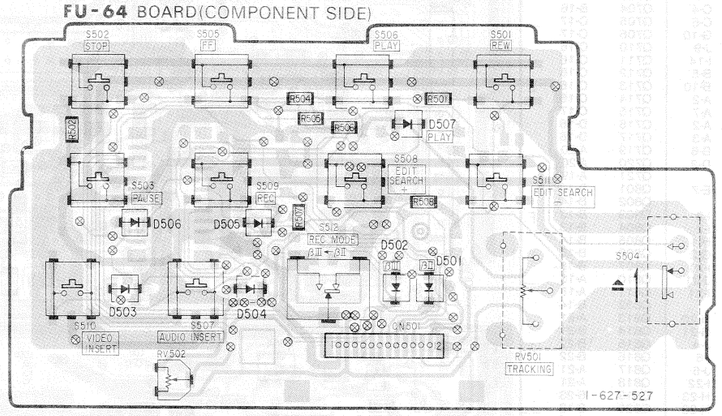
RP-62 BOARD



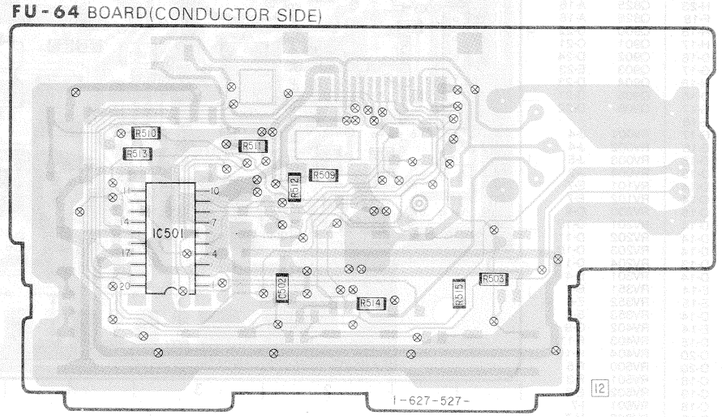
ES-14 BOARD



FU-64 BOARD(COMPONENT SIDE)



FU-64 BOARD(CONDUCTOR SIDE)

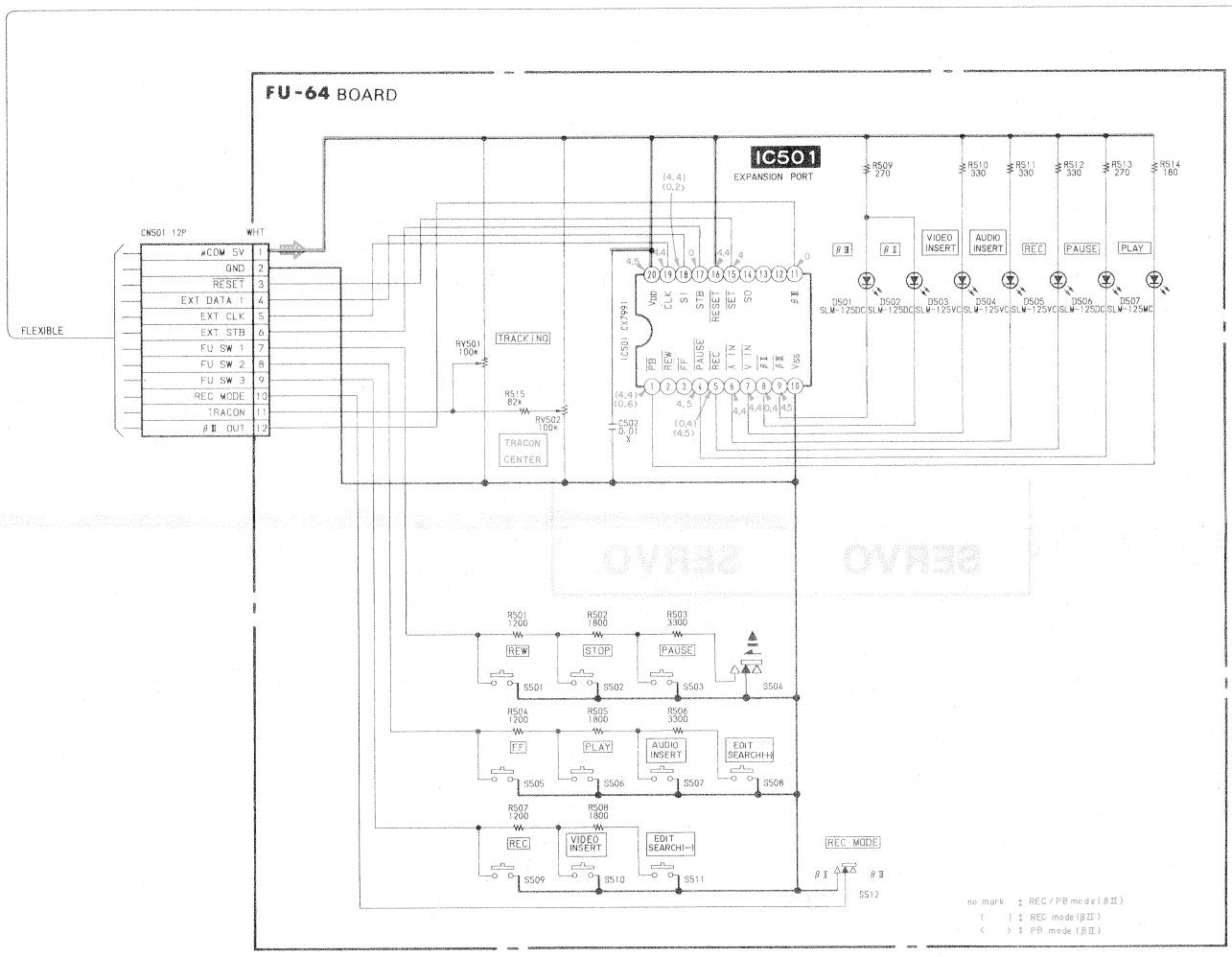


1 2 3 4 5 6 7 8 9

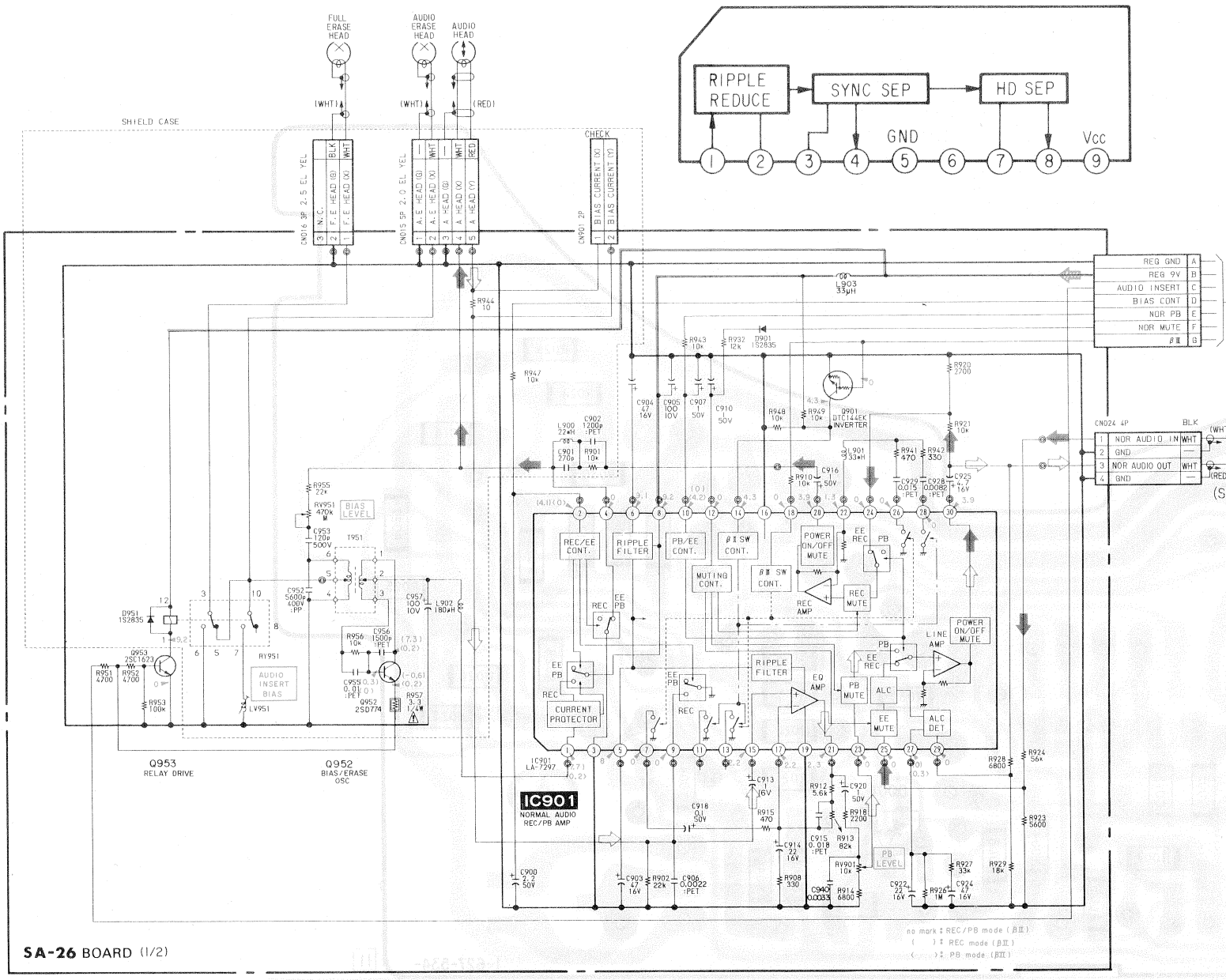
A B C D E F G H I J K L M N

— Ref. No. SA-26, FU-64, ES-14, RP-62 BOARDS : 6000 series —

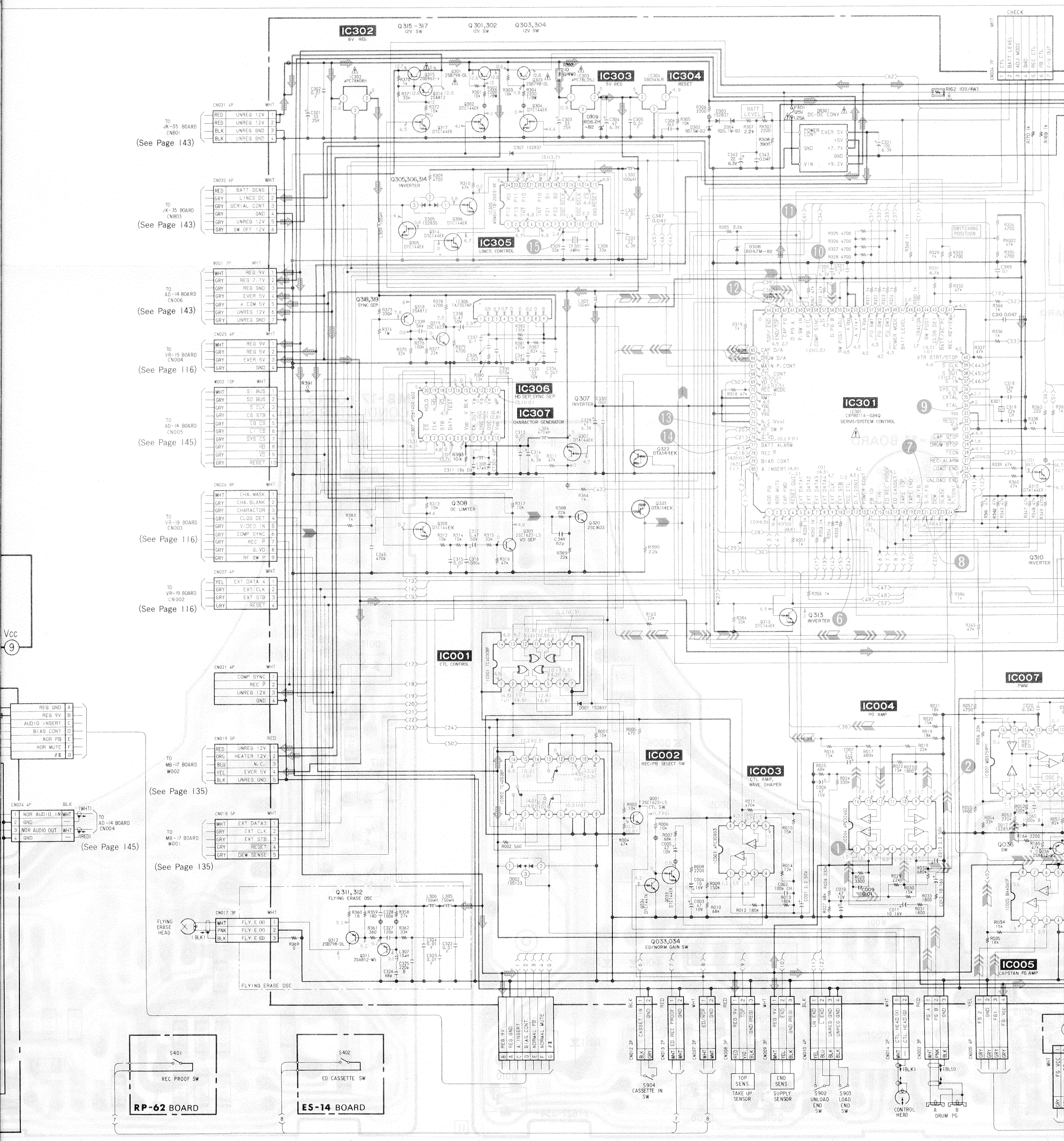
VCR BLOCK



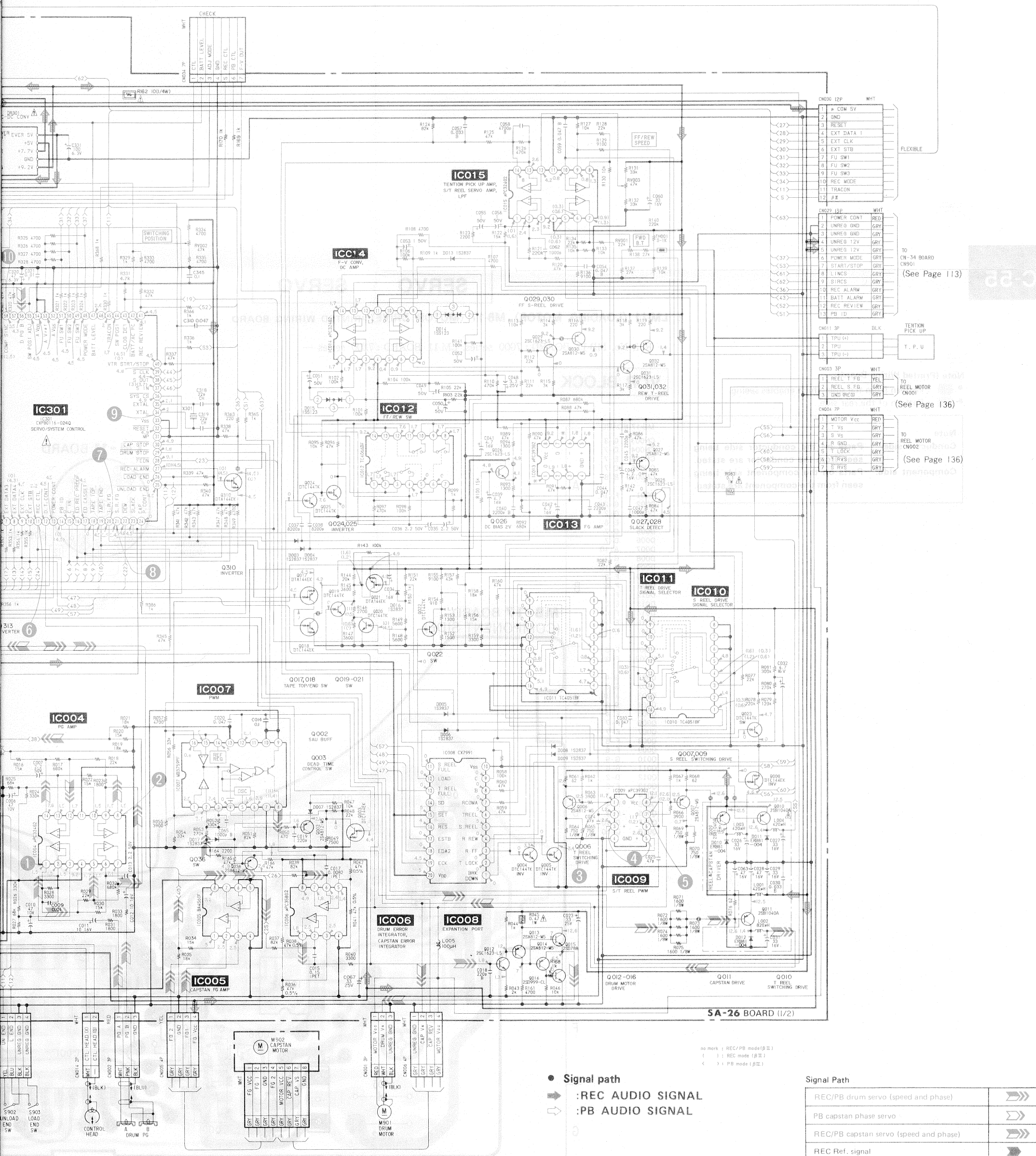
IC306
TA7357AP



SA-26 BOARD (1/2)


IC302
8V REG
Q315 - 317
12V SW
Q301,302
12V SW
Q303,304
12V SW
IC303
5V REG
IC304
RESET
CHECK
CN034 7P
CTL
BATT LEVEL
ADJ MODE
GND
REC CTL
PB CTL
F-V OUT
CN031 4P
RED UNREG 12V 1
RED UNREG 12V 2
BLK UNREG GND 3
BLK UNREG GND 4
TO JK-35 BOARD CN801
(See Page 143)
CN032 6P
RED BATT SENS 1
GRY LINCS DC 2
GRY SERIAL CONT 3
GRY GND 4
GRY UNREG 12V 5
GRY SW OFF 12V 6
TO JK-35 BOARD CN803
(See Page 143)
W001 7P
WHT REG 9V 1
GRY REG 7.7V 2
GRY REG GND 3
GRY EVER 5V 4
GRY μ COM 5V 5
GRY UNREG 12V 6
GRY UNREG GND 7
TO AD-14 BOARD CN006
(See Page 143)
CN025 4P
WHT REG 9V 1
GRY REG 5V 2
GRY EVER 5V 3
GRY GND 4
TO VR-19 BOARD CN004
(See Page 116)
W002 10P
WHT S1 BUS 1
GRY S0 BUS 2
GRY S CLK 3
GRY CG STB 4
GRY CG CS 5
GRY LIF CS 6
GRY SYS CS 7
GRY HD 8
GRY VD 9
GRY RESET 10
TO AD-14 BOARD CN005
(See Page 145)
CN026 9P
WHT CHA. MASK 1
GRY CHA. BLANK 2
GRY CHARACTOR 3
GRY CLOG DET 4
GRY VIDEO IN 5
GRY COMP SYNC 6
GRY REC P 7
GRY G. VD 8
GRY RF SW P 9
TO VR-19 BOARD CN003
(See Page 116)
CN027 4P
YEL EXT DATA 4 1
GRY EXT CLK 2
GRY EXT STB 3
GRY RESET 4
TO VR-19 BOARD CN002
(See Page 116)
CN021 4P
COMP SYNC 1
REC P 2
UNREG 12V 3
GND 4
REG GND A
REG 9V B
AUDIO INSERT C
BIAS CONT D
NOR PB E
NOR MUTE F
G
CN019 5P
RED UNREG 12V 1
ORG HEATER 12V 2
BLU N.C. 3
YEL EVER 5V 4
BLK UNREG GND 5
TO MB-17 BOARD W002
(See Page 135)
CN024 4P
1 NOR AUDIO IN WHT (WHT)
2 GND —
3 NOR AUDIO OUT WHT (RED)
4 GND —
TO AD-14 BOARD CN004
(See Page 145)
CN018 5P
WHT EXT DATA3 1
GRY EXT CLK 2
GRY EXT STB 3
GRY RESET 4
GRY DEW SENSE 5
TO MB-17 BOARD W001
(See Page 135)
CN017 3P
WHT FLY E (X) 1
PNK FLY E (Y) 2
BLK FLY E (G) 3
FLYING ERASE HEAD
(BLK)
IC001
CTL CONTROL
IC002
REC/PB SELECT SW
IC003
CTL AMP, WAVE SHAPER
IC004
PG AMP
IC005
CAPSTAN FG AMP
IC007
PWM
IC301
CXP80116-024Q
SERVO/SYSTEM CONTROL
IC305
LINCS CONTROL
IC306
HD SEP, SYNC SEP
IC307
CHARACTOR GENERATOR
Q305,306,314
INVERTER
Q307
INVERTER
Q310
INVERTER
Q313
INVERTER
Q318,319
SYNC SEP
Q308
DC LIMITER
Q311,312
FLYING ERASE OSC
Q033,034
ED/NORM GAIN SW
Q322
DTA144EK
Q321
DTA114EK
Q036
SW
S401
REC PROOF SW
RP-62 BOARD
S402
ED CASSETTE SW
ES-14 BOARD
S904
CASSETTE IN SW
TAKE UP SENSOR
SUPPLY SENSOR
S902
UNLOAD END SW
S903
LOAD END SW
CONTROL HEAD
DRUM PG
FLYING ERASE OSC
SWITCHING POSITION
POWER CONT
EVER 5V
+5V
GND
+7.7V
GND
VIN
+9.2V
DC-DC CONV
BATT LEVEL
REG 9V
REG GND
A INSERT
BIAS CONT
NORMAL PB
NORMAL MUTE
CN012 2P CASSET IN GND
CN013 2P ED REC PROOF GND
CN007 2P ED/NOR GND
CN008 3P REG 9V TOP GND (REG)
CN009 3P REG 9V END GND (REG)
CN010 4P UN END L END UNREG GND UNREG GND
CN014 2P CTL HEAD (X) CTL HEAD (G)
CN002 3P PG A PG B GND
CN005 4P FG 2 GND FG 1 FG VCC
Vcc
9

18 19 20 21 22 23 24 25 26 27 28



no mark : REC/PB mode (βII)
( ) : REC mode (βII)
< > : PB mode (βII)

- **Signal path**
  - ➡ :REC AUDIO SIGNAL
  - ⇨ :PB AUDIO SIGNAL

Signal Path

REC/PB drum servo (speed and phase)	➡
PB capstan phase servo	⇨
REC/PB capstan servo (speed and phase)	➡
REC Ref. signal	➡

SA-26 BOARD (1/2)

SA-26 FU-64 ES-14 RP-62

LM-11 (LOADING MOTOR), MB-17 (MOTOR DRIVE) PRINTED WIRING BOARD

— Ref. No. MB-17 BOARD : 7000 series, LM-11 BOARD : 7200 series —

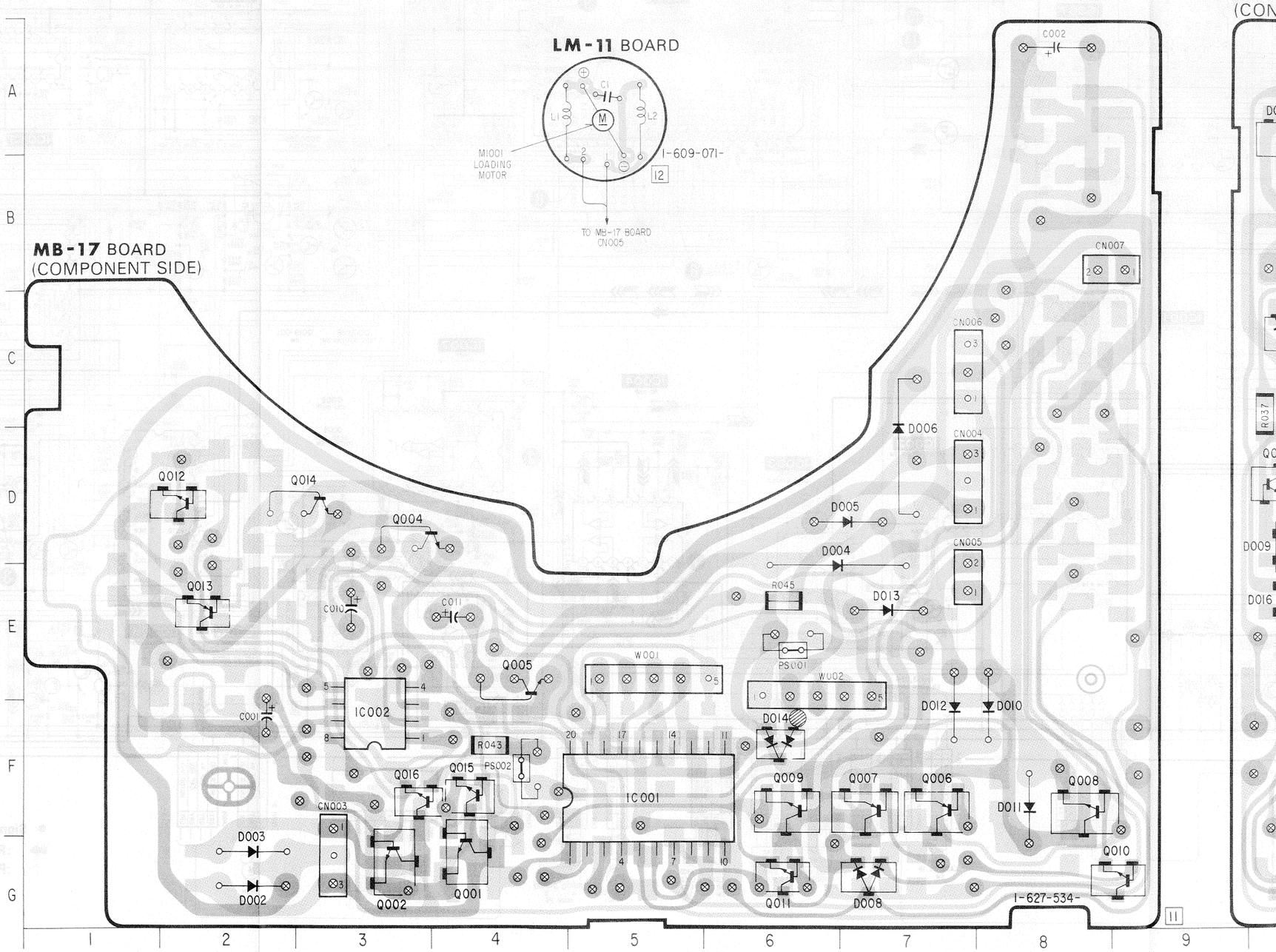
VCR BLOCK

Note (Printed Wiring Board)
- ■ : Pattern from the side which enables seeing.
- ■ : Pattern of the rear side.

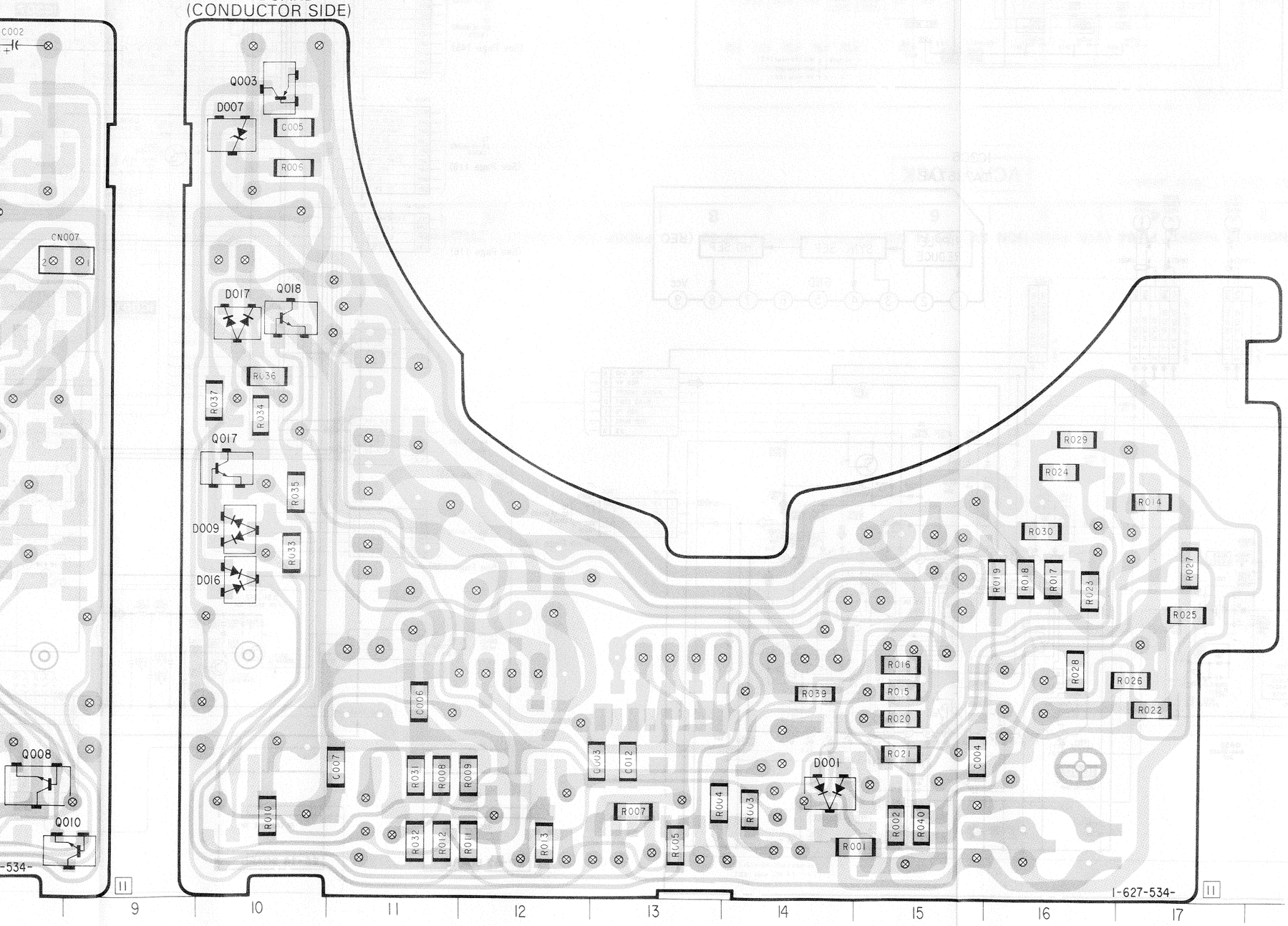
Note	
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

MB-17 BOARD

CN003	G-3
CN004	D-7
CN005	E-7
CN006	C-7
CN007	B-8
D001	F-14
D002	G-2
D003	G-2
D004	E-6
D005	D-7
D006	D-7
D007	A-10
D008	G-7
D009	D-10
D010	F-8
D011	F-8
D012	F-7
D013	E-7
D014	F-6
D016	E-10
D017	C-10
IC001	F-5
IC002	F-3
Q001	G-4
Q002	G-3
Q003	A-10
Q004	D-3
Q005	E-4
Q006	F-7
Q007	F-7
Q008	F-8
Q009	F-6
Q010	G-9
Q011	G-6
Q012	D-2
Q013	E-2
Q014	D-3
Q015	F-4
Q016	F-3
Q017	D-10
Q018	C-10



MB-17 BOARD
(CONDUCTOR SIDE)



LM-11 (LOADING MOTOR), MB-17 (MOTOR DRIVE) SCHEMATIC DIAGRAM

— Ref. No. MB-17 BOARD : 7000 series, LM-11 BOARD : 7200 series —

VCR BLOCK

MB-17 BOARD

IC001 EXPANTION PORT

IC001 CX-7991

Q001, 015 BRAK SOLENOID ON DRIVE

Q002, 016 BRAKE SOLENOID OFF DRIVE

Q003 POWER OFF DET

Q004, 005 THREADING MOTOR DRIVE

Q006-011, 017, 018 THREADING MOTOR DRIVE

IC002 HEATER CONTROL, DEW DET

Q012 SW

Q013 INVERTER

Q014 HEATER SW

W001 5P

WHT	EXT DATA	1
GRY	EXT CLK	2
GRY	EXT STB	3
GRY	RESET	4
GRY	DEW SENSE	5

TO SA-26 BOARD CN018 (See Page 128)

W002 5P

RED	UNREG 12V	1
ORG	HEATER 12V	2
BLU	SW'D 12V	3
YEL	REG 5V	4
BLK	UNREG GND	5

TO SA-26 BOARD CN019 (See Page 128)

CN003 3P WHT

3	BRK ON	BRN
2	UNREG 12V	RED
1	BRK OFF	ORG

CN003 WHT

BRN	BRK ON	3
RED	UNREG 12V	2
ORG	BRK OFF	1

M903 REEL MOTOR

CN001 WHT: 1 YEL REEL T FG, 2 GRY REEL S FG, 3 GRY GND

CN002 WHT: 1 RED MOTOR Vcc, 2 GRY T VS, 3 GRY S VS, 4 GRY R GND, 5 GRY T LOCK, 6 GRY T RVS, 7 GRY S RVS

TO SA-26 BOARD CN003 (See Page 130)

TO SA-26 BOARD CN004 (See Page 130)

CN004 3P RED

3	PNCH ON	RED
2	UNREG 12V	YEL
1	PNCH OFF	BLU

PM1001 PINCH

LM-11 BOARD

CN005 2P WHT

2	LOAD MOTOR (+)	RED
1	LOAD MOTOR (-)	BLK

L001 18μH, L002 18μH, C001 0.018

M1001 LOADING MOTOR

CN007 2P RED

2	HEATER (+)	
1	HEATER (-)	

DEW HEATER

CN006 3P WHT

3	DEW	RED
2	UNREG GND	BLK
1	THERM	ORG

DEW SENSOR

no mark : REC mode
( ) : LOADING mode
< > : UNLOADING mode

AD-14 (AFM AUDIO, DDS CONTROL, LCD), JK-35 (POWERSWITCH, ACCESSORY TERMINAL), JK-36 (VIDEO/AUDIO OUTPUT JACK) PRINTED WIRING BOARD

— Ref. No. AD-14, JK-35, JK-36 BOARDS : 8000 series —

VCR BLOCK

AD-14 BOARD

CN001 F-2
CN002 I-11
CN003 G-2
CN004 E-5
CN005 C-2
CN006 F-2
CN007 E-6
CN008 F-6
CN009 E-3
CN010 E-4
CN011 D-2

D001 H-20
D201 I-20
D210 H-23
D301 D-20
D401 H-22
D402 G-3
D571 H-1
D572 H-22
D701 B-16
D702 C-14
D703 C-9
D704 B-14
D705 B-14

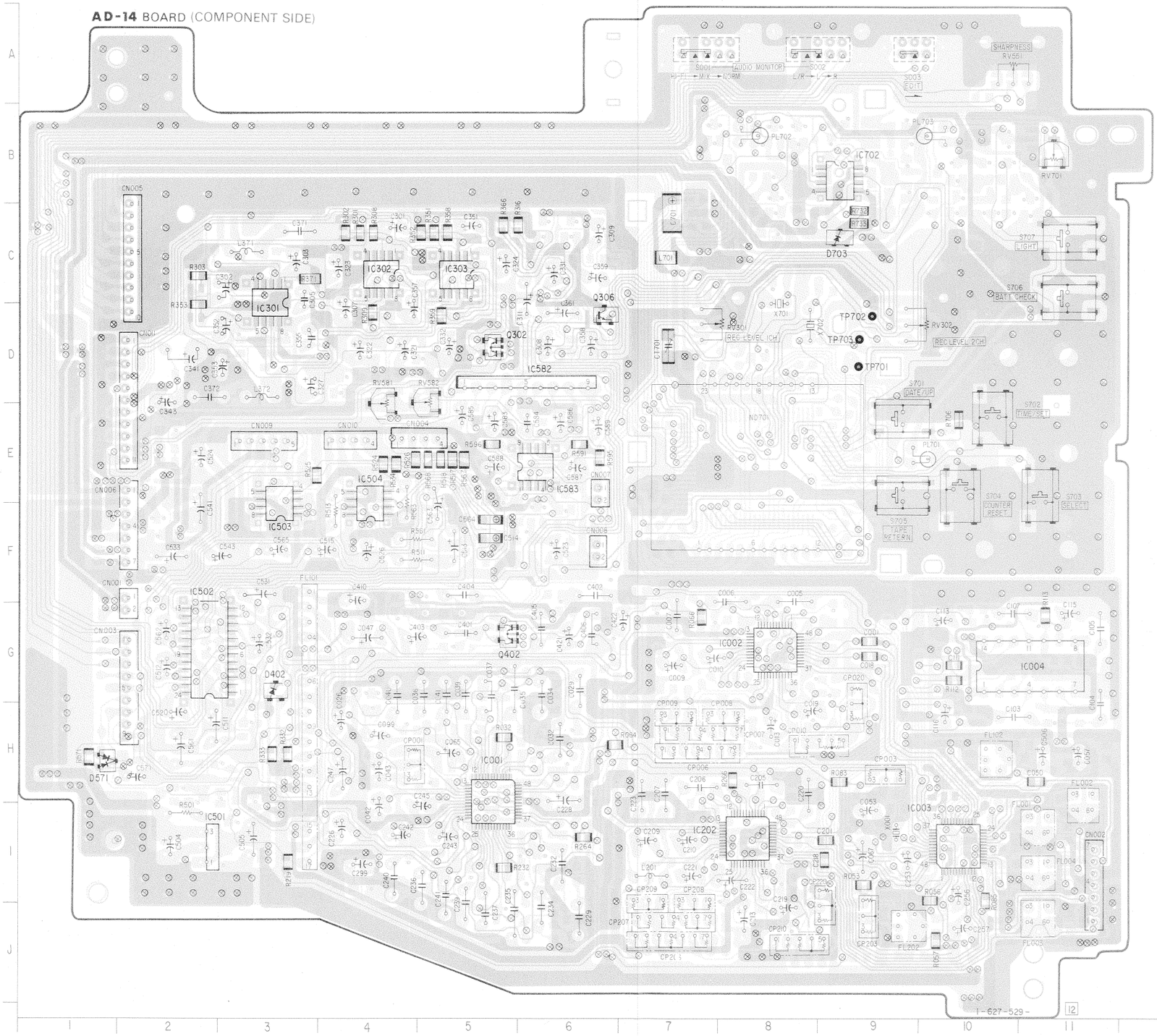
IC001 H-5
IC002 G-8
IC003 I-10
IC004 G-11
IC202 I-8
IC301 C-3
IC302 C-4
IC303 C-5
IC501 I-2
IC502 G-2
IC503 F-3
IC504 E-4
IC582 D-6
IC583 E-6
IC701 E-16
IC702 B-9

Q201 I-21
Q301 E-22
Q302 D-5
Q303 C-18
Q304 C-18
Q305 D-20
Q306 D-6
Q307 D-20
Q401 G-19
Q402 G-5
Q403 G-20
Q501 F-22
Q502 F-19
Q503 F-19
Q504 F-18
Q701 C-16
Q702 C-16
Q703 B-16
Q704 B-15
Q705 B-15
Q706 C-14
Q707 B-14
Q708 B-17
Q709 B-14

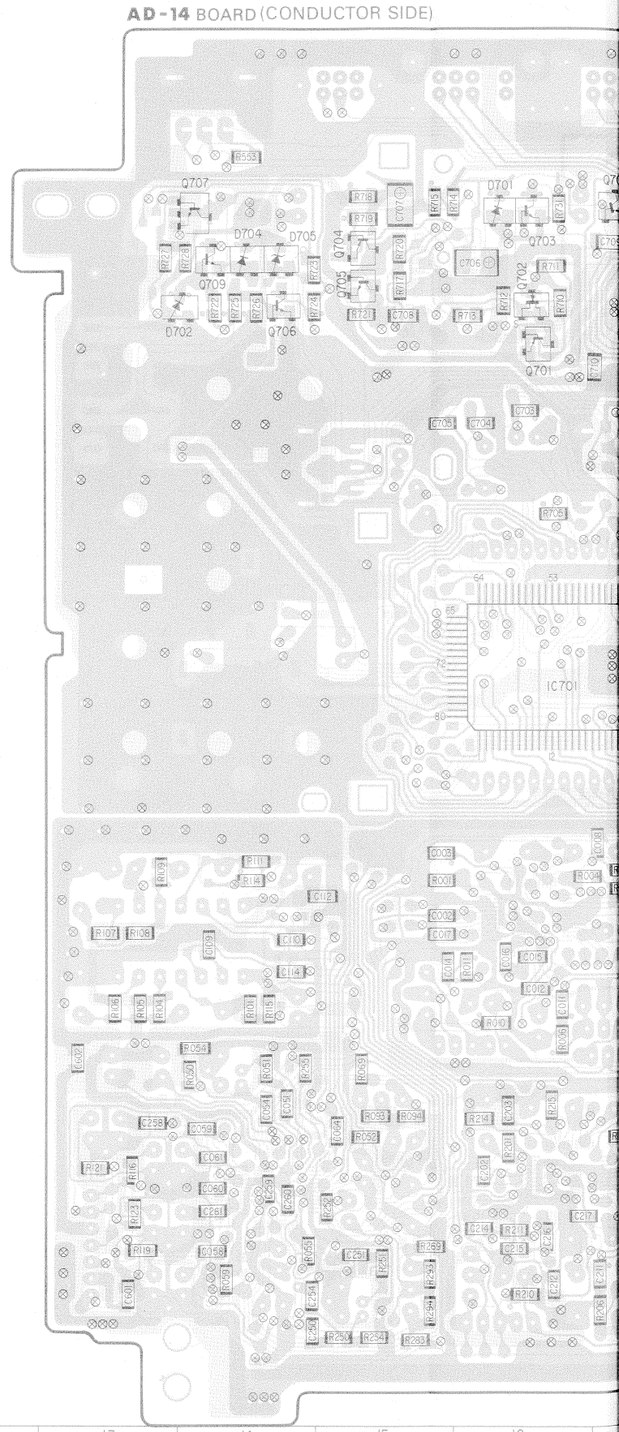
RV301 D-8
RV302 D-10
RV551 A-10
RV581 D-4
RV582 D-5
RV701 B-11

TP701 D-9
TP702 D-9
TP703 D-9

AD-14 BOARD (COMPONENT SIDE)



AD-14 BOARD (CONDUCTOR SIDE)



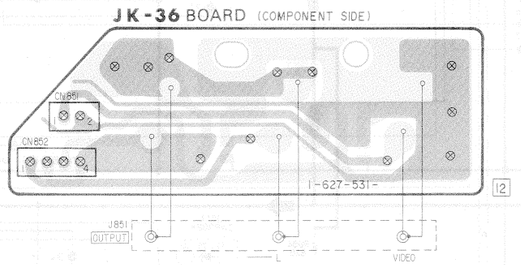
ONDUCTOR SIDE)

Note (Printed Wiring Board)

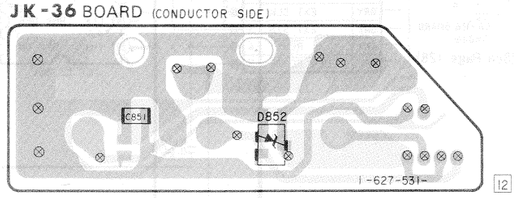
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

Note	
Conductor side:	Parts on the conductor side being seen from the conductor are stated.
Component side:	Parts on the component side being seen from the component are stated.

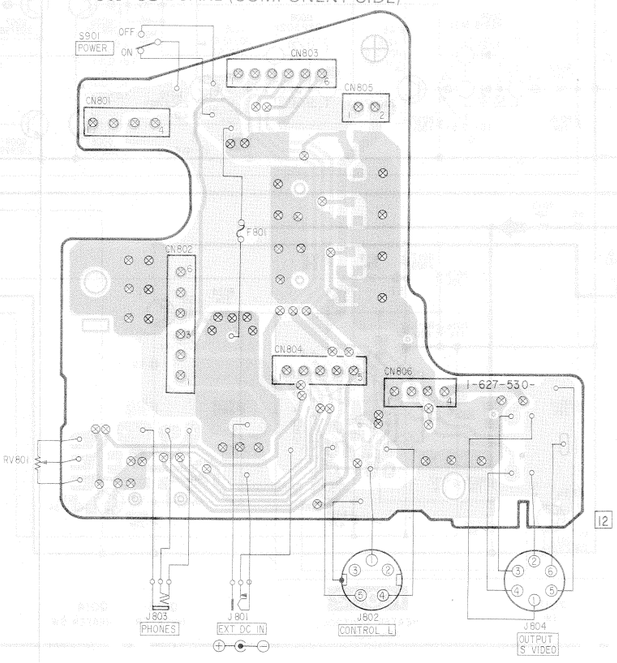
JK-36 BOARD (COMPONENT SIDE)



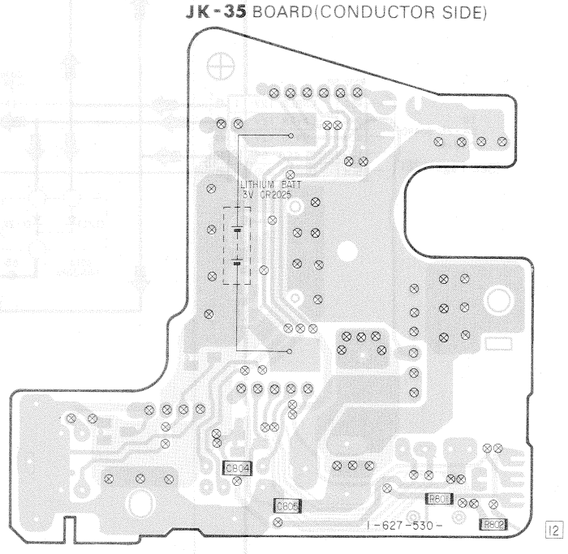
JK-36 BOARD (CONDUCTOR SIDE)



JK-35 BOARD(COMPONENT SIDE)



JK-35 BOARD(CONDUCTOR SIDE)



— Ref. No. AD-14, JK-35, JK-36 BOARDS : 8000 series —

VCR BLOCK

- **Signal path**
  - :PB Y SIGNAL
  - :PB CHROMA SIGNAL
  - :PB Y & CHROMA SIGNAL
  - :REC AUDIO SIGNAL
  - :PB AUDIO SIGNAL

JK-35 BOARD

EXT DC IN, J801, C805 0.047, F801 125V 4A, S901 POWER (OFF/ON)

CN801 4P: WHT — RED UNREG 12V OUT, RED UNREG 12V OUT, BLK UNREG GND, BLK UNREG GND
TO SA-26 BOARD CN031
(See Page 128)

CN802 6P: WHT — RED BATT 12V IN, RED BATT 12V IN, BRN BATT SENS 1, ORG BATT SENS 2, BLK BATT GND, BLK BATT GND
BATT, BATTERY CASE

J802 CONTROL L
CN803 6P: WHT — RED BATT SENS 1, GRY LINCS DC IN, GRY SERIAL CONT, GRY GND, GRY UNREG 12V, GRY SW OFF 12V
TO SA-26 BOARD CN032
(See Page 128)

J803 PHONES, PHONES LEVEL, R801 2700, RV801 10k, R802 1.2k, C804 0.01
CN804 5P: YEL — WHT H.P L OUT, WHT GND, WHT H.P R OUT, WHT AUDIO 9V, WHT H.P LEVEL

LITHIUM BATT 3V CR2025
CN805 2P: WHT — WHT LI 3V, WHT GND

J804 OUTPUT S VIDEO
CN806 4P: WHT — WHT Y OUT (X), WHT Y OUT (G), WHT C OUT (X), WHT C OUT (G)
TO VR-19 BOARD CN008 1-4
(See Page 116)

CHASSIS GND

S701 DATE/UP, S702 TIME/SET, S703 SELECT, S704 COUNTER RESET, S705 TAPE RETURN

C705 30p CH, C704 30p CH, C703 33p CH, C702 0.047 X, C701 2.2 6.3V, C1701 30P, R706 0, X702 4.19M, X701 32.7K, R705 330k, CLOCK, TP702, TP703

IC701
IC701 μPD753068F-024
DDS CONTROL

TP701
C RESET, D SEL, TIME, DATE, X'TAL, X2, X1, XT2, XT1, VDD, TEST, CLK OUT, HD, 5V/3V, VD, S1
T RETRN, LNSCS KILL, LI DOWN, RESET, S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11
SO, SCLK, CG STB, CG CS, LI CS, SYS CS, VSS, VLC2, VLC1, VLC0, BIAS
S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31, COM0, COM1, COM2, COM3

R701 47k, R702 47k, R703 47k, R704 47k, R734 470, R735 470

ND701
ZERO MEM, DATE, TIME, COUNTER, AM, PM, LP
13-23, 1-8

IC702
RESET, LI BATT DOWN DET

CN001 2P: WHT — WHT LI 3V, WHT LI GND

CN006 7P: WHT — WHT REG 9V, GRY REG 7.7V, GRY REG GND, GRY EVER 5V, GRY ACOM 5V, GRY UNREG 12V, GRY GND
TO SA-26 BOARD W001
(See Page 128)

Q704 VDD ON RESET, Q705 DTC144EK RESET, Q701 2SA812, Q702 2SK209G, Q703 DTC144EK LI BATT SW, Q708 DTC144EK INVERTER
IC702 μPC39382
L701 100μH
D701 1SS193, D703 SB01-05CP
R721 47k, R718 100k, R719 100k, R720 2200, R717 100k, R706 100k, R712 100k, R714 100k, R715 100k, R713 120k, R710 33k, R711 2.2M, R732 100, R733 5.6k, R730 10k, R731 10k, C710 0.01, C706 2.2 20V, C707 2.2 20V, C708 1, C709 1
PL701 PL702 12V 40mA
S707 LIGHT, R727 3300, R728 10k

8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19

JK-35 BOARD

BATT 025

J804 OUTPUT S VIDEO

CHASSIS GND

CN806 4P: WHT, Y OUT (X), Y OUT (G), C OUT (X), C OUT (G)

TO VR-19 BOARD CN008 1 – 4

(See Page 116)

JK-36 BOARD

TO VR-19 BOARD CN008 5 6

(See Page 116)

CN851 2P: (BLK) WHT VIDEO OUT (X) 1; — VIDEO OUT (G) 2 — C851 0.01 — J851 OUTPUT VIDEO

CHASSIS GND

CN852 4P: (WHT) WHT AUDIO L OUT 1; — GND 2; (RED) WHT AUDIO R OUT 3; — GND 4 — AUDIO L R

D852 RD5.6M-B1

CHASSIS GND

TO CN-34 BOARD CN903

(See Page 113)

CN011 11P: (WHT) — GND 1; WHT LINE L IN 2; (RED) — GND 3; WHT LINE R IN 4; WHT MIC I LINE 5; WHT MIC 9V 6; WHT MIC L IN 7; — GND 8; RED MIC R IN 9; (WHT) — GND 10; (RED) WHT MIX LINE OUT 11

IC302 INPUT SELECT

IC301 INPUT SELECT

(See Page 128)

TO SA-26 BOARD CN024

CN004 4P: (WHT) WHT NOR AUDIO OUT 1; — GND 2; WHT NOR AUDIO IN 3; (RED) — GND 4

IC583 METER AMP

IC582 BA6138

IC583 NJM2904M

CN005 10P: 1 SI BUS WHT; 2 SO BUS GRY; 3 S CLK GRY; 4 CG STB GRY; 5 CG CS GRY; 6 LI CS GRY; 7 SYS CS GRY; 8 HD GRY; 9 VD GRY; 10 RESET GRY

(See Page 128)

TO SA-26 BOARD W002

E METER L OUT; F METER R OUT

LEVEL METER (R) — LEVEL METER (L)

Q504 L/R MIX — Q503 BUFF — Q502 BUFF

CN009 5P: (WHT) WHT H.P. L OUT 1; — GND 2; (RED) WHT H.P. R OUT 3; — AU 9V 4; WHT H.P. LEVEL 5

CN010 4P: (WHT) WHT AUDIO L OUT 1; — GND 2; (RED) WHT AUDIO R OUT 3; — GND 4

IC504 MUTE

Q301 RIPPLE FILTER — Q501 RIPPLE FILTER

REG 9V A; REG 7.7V B; REG GND C; EVER 5V D; MTR L IN E; MTR R IN F

A SWD 9V; B SWD 7.7V; C GND; D EVER 5V

CN008 2P: 1 MTR L RED; 2 GND GRY — LEVEL METER (L)

CN007 2P: 1 MTR R/BATT BLK; 2 GND GRY — LEVEL METER (R)

CN003 9P: BLK AU MUTE 9; GRY LINE MUTE 8; GRY AF PB 7; GRY AF REC P 6; GRY CHARGE COUT 5; GRY AF MUTE 4; GRY EDIT 3; GRY SHARPNESS 2; GRY GND (VIDEO) 1

TO VR-19 BOARD CN005

(See Page 116)

SHARPNESS — S002 AUDIO MONITOR S001 — S002 L/R L R — S001 HI-FI MIX NORM

BATT LEVEL

PL701 12V 40mA — PL702 12V 40mA — S706 BATT CHECK — PL703 12V 40mA

S707 LIGHT — Q707 2SD999 LIGHT ON SW

D702 RD13M-B1 — D704 1SS193 — D705 RD10M-B2 — RV701 4.7k

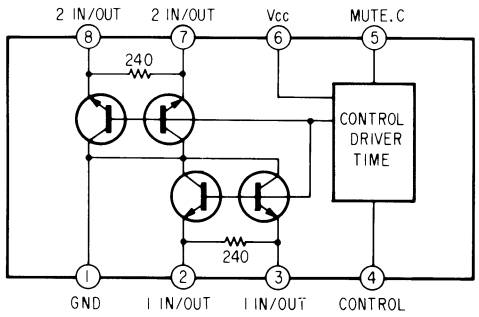
Q709 2SC1623 SW — Q706 2SC1623 SW

Q708 DTC144EK INVERTER

no mark: E-E mode

AD-14 BOARD (1/2)

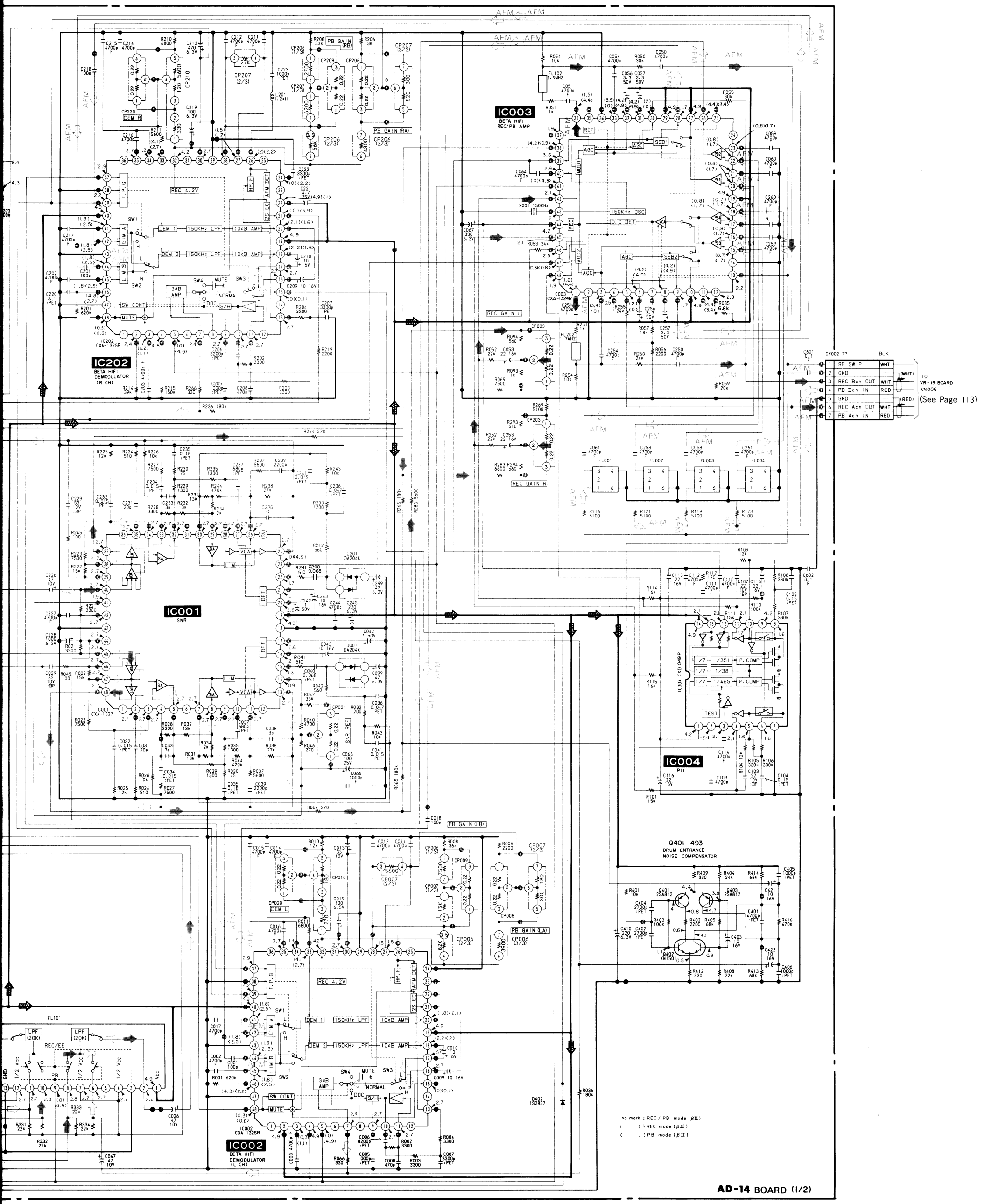
IC503, 504
TK15120M



CONTROL SW
H-MUTE ON
L-MUTE OFF

IC302 INPUT SELECT
IC301 INPUT SELECT
IC303 INPUT SELECT
Q305,307 DC BIAS 45V
Q302 INVERTER
Q303,304 BUFF
Q306 L/R MIX
RV301 REC LEVEL 1 CH
IC582 METER AMP
LEVEL METER (L)
Q502 BUFF
IC503 MUTE
IC504 MUTE
Q501 RIPPLE FILTER
IC502 OUTPUT SELECTOR
IC501 5V REG
IC001 SNR
IC202 BETA HIFI DEMODULATOR (R CH)
IC002 BETA HIFI DEMODULATOR (L CH)
IC003 BETA HIFI REC/PB AMP
S001 HI-FI MIX NORM
S002 L/R L R
AUDIO MONITOR
REC 4.2V
REC/EE
PB
LPF (20K)
150KHz LPF
10dB AMP
3dB AMP
MUTE
NORMAL
SW CONT
REC GAIN L
REC GAIN R
PB GAIN (RB)
PB GAIN (LB)
PB GAIN (RA)
PB GAIN (LA)
AFM

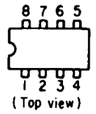
22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33



AD-14 JK-35 JK-36

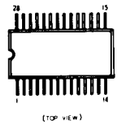
4-5. SEMICONDUCTORS

BA4560
μPC4558C

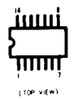


BA6138
TA7357AP

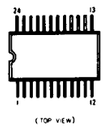
CX20057-T1
CX-893A
CXL1008M



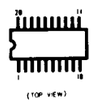
CX20095A
MC1496MR
TC4030BF
TC4066BF
μPC324G2



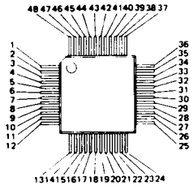
CX20176
MSM6411B-26GS-VK



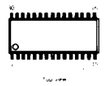
CX-7991
CXA1270N-T3
CXL1504M
MB88341RFV-T3



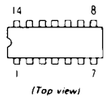
CXA1070Q-Z
CXA1072Q-Z
CXA1121Q-Z
CXA1324R
CXA1325R
CXA1326Q-Z
CXA1327R



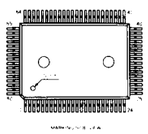
CXA1091M



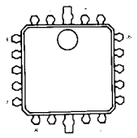
CXD1049P



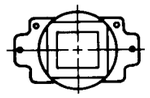
CXP80116-024Q
MB89797
μPD75306GF



HA11423MP



IU022AL-10B
IU022AM-10A



LA7297

M5201FP
MSM16911MS-K
NJM2234M
NJM2235M
NJM2904M
NJM4560M
TK15120M
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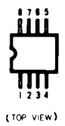
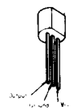
μPC393G2
μPC4572G2



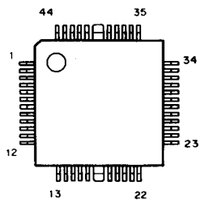
M5278L05
μPC78L05J
μPC78N08H



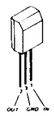
MB3759PF
TC4051BF
TC4053BF
μPD6145G-602

S-8054ALR-LN

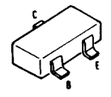
TA7788AF



μPC78L05

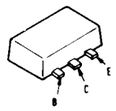


2SA1122
2SA1226
2SA812
2SA812-M5
2SA812-M6
2SC1623
2SC1623-L7
2SC2059K
2SC2412K
2SC2712G
2SC2713
DTA143XK
DTA144EK
DTC114EK
DTC114TK
DTC124EK
DTC144EK
DTC144TK



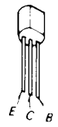
2SB1040A
2SB962
2SD1083L
2SD1164

2SB798
2SB804AW
2SD1005
2SD999



2SD774-K4

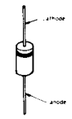
2SD788



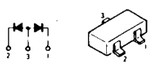
2SK152-3

2SK209G
2SK300

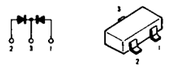
10E2
RD6.2EB2



1S2835
DAP202K



1S2837
DAN202K



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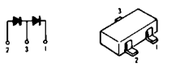
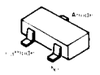
DA204K
MA153

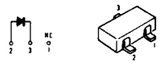


1SS133
RD6.2ES-B2

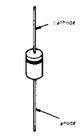
1SS187



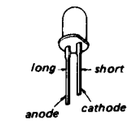
1SS193
1SS220
RD10M-B2
RD12M-B2
RD13M-B1
RD15M-B2
RD3.0M-B1
RD4.3M-B1
RD4.7M-B2
RD5.1M-B3
RD5.6M-B1
RD6.2M-B1
RD6.2M-B2
RD6.2M-B3
RD9.1M-B1
SB01-05CP



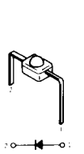
ERB81-004
RH-1A
RU-1C



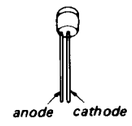
EBR5504S



SLM-125DC-C1
SLM-125MC
SLM-125VC



TL0102A
TLR109A



SECTION 5
EXPLODED VIEWS

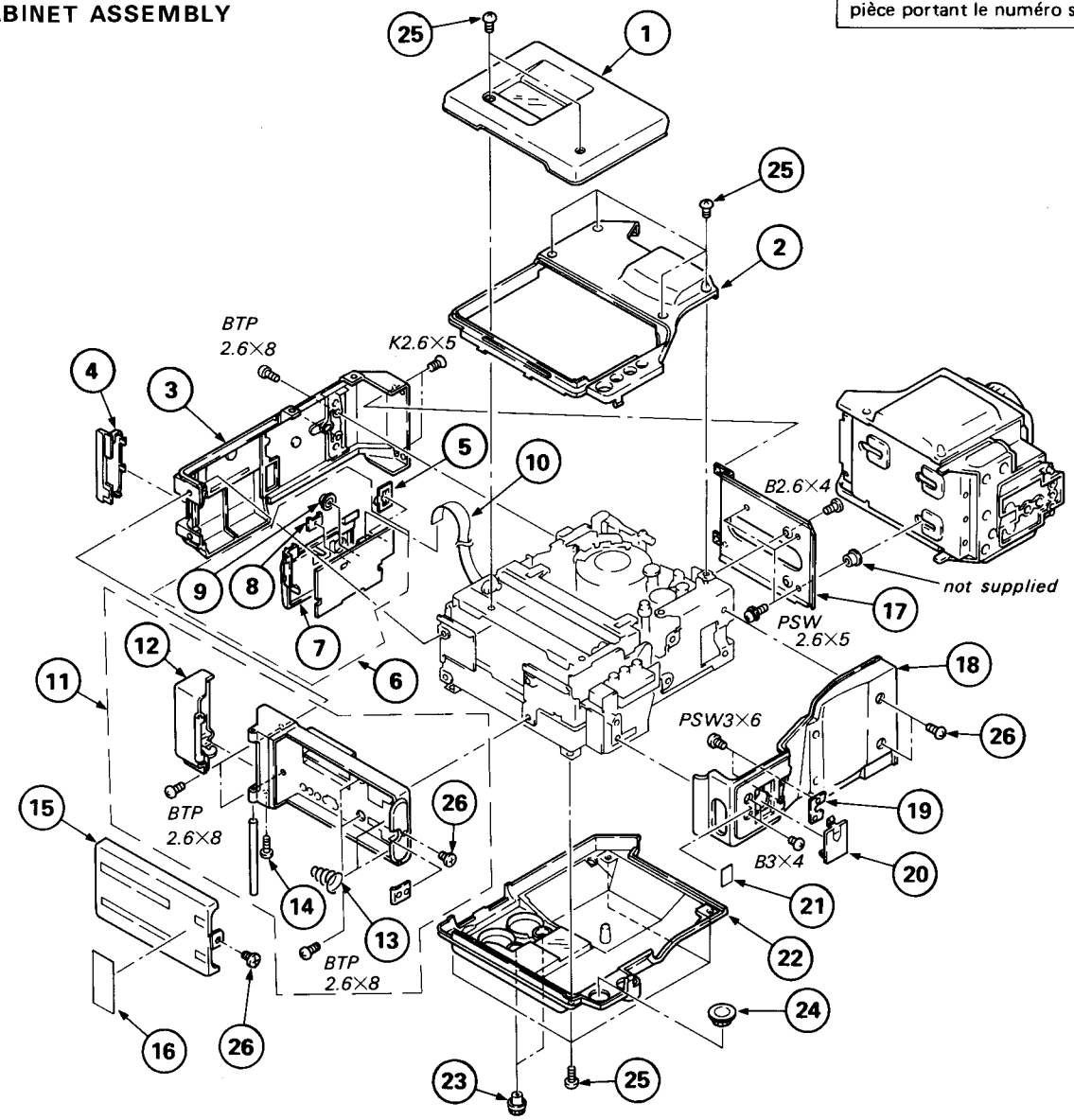
NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

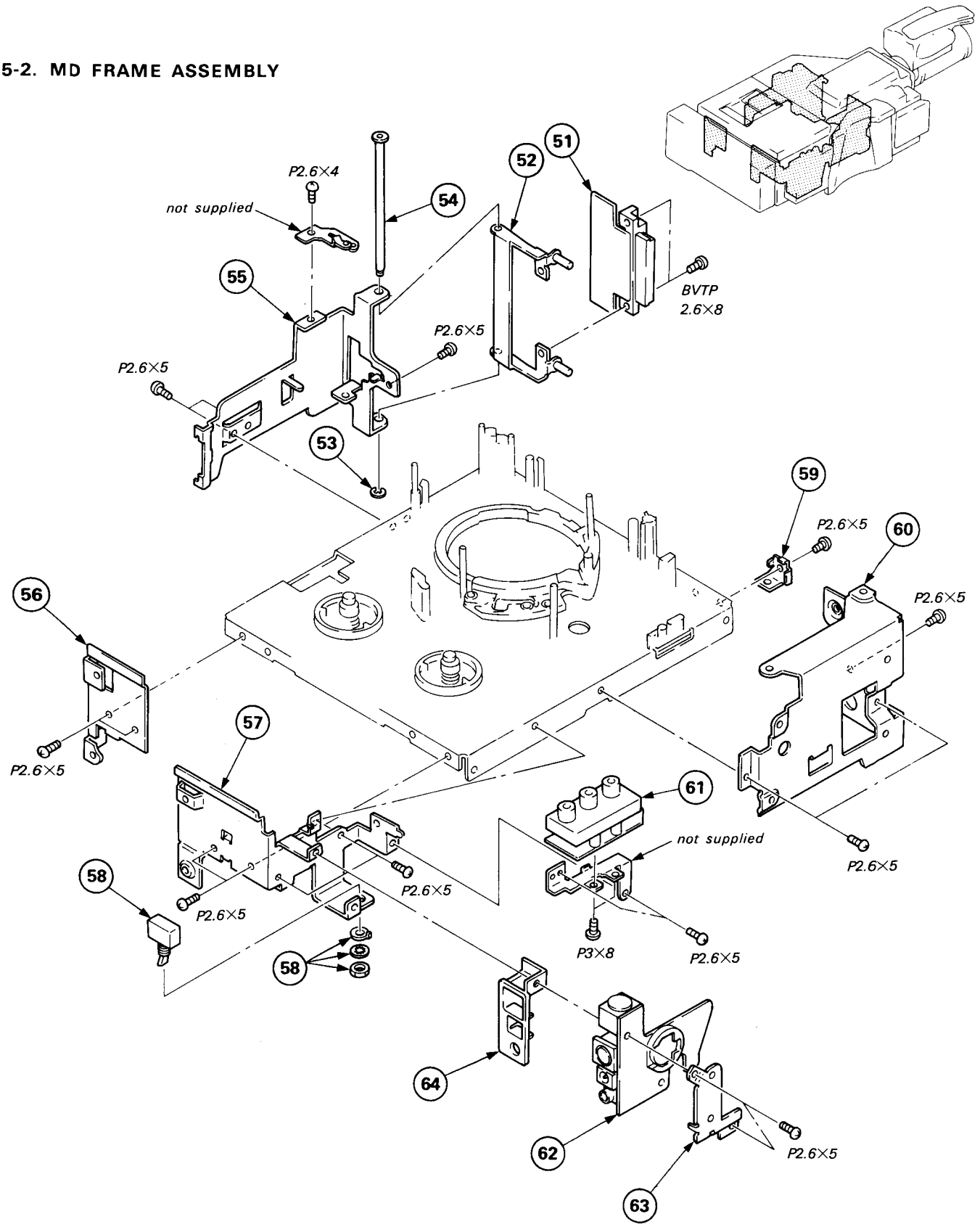
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET ASSEMBLY



No.	Part No.	Description	Remark
1	X-3726-129-1	CABINET ASSY	
2	X-3726-130-1	PANEL ASSY, OUTSIDE	
3	X-3726-128-1	PANEL ASSY, TOP	
4	3-726-179-01	PLATE, ORNAMENTAL, BATTERY	
5	3-726-191-01	KNOB, EJECT	
6	*A-6715-412-A	FU-64 BOARD, COMPLETE	7-9
7	X-3726-131-1	PANEL ASSY, FU	
8	3-726-139-01	KNOB MODE SELECTION	
9	3-726-164-01	KNOB TRACK CONTROL	
10	1-574-059-11	FFC 12P	
11	X-3726-124-1	CASE ASSY, BATT	12-14
12	3-726-186-01	LID, BATTERY	
13	3-678-967-02	SPRING, COMPRESSION	
14	2-370-905-00	SCREW (B) (2X8), TAPPING	
15	3-726-219-01	COVER, BATTERY	
16	*3-726-238-01	LABEL, MODEL NUMBER (U/C), VTR	
17	*X-3726-127-1	PANEL ASSY, MC	
18	3-726-218-01	CABINET, DECK (BOTTOM)	
19	3-726-160-01	PLATE, LOCK	
20	3-678-969-41	COVER, BATTERY	
21	*3-726-281-01	LABEL, CAUTION	
22	X-3726-132-1	PANEL ASSY, FACESIDE	
23	3-726-165-01	KNOB, REC VR	
24	3-726-143-01	KNOB, VOLUME, HP	
25	3-730-738-01	SCREW (3X8), +B	
26	3-370-736-01	SCREW (3X5), +B	

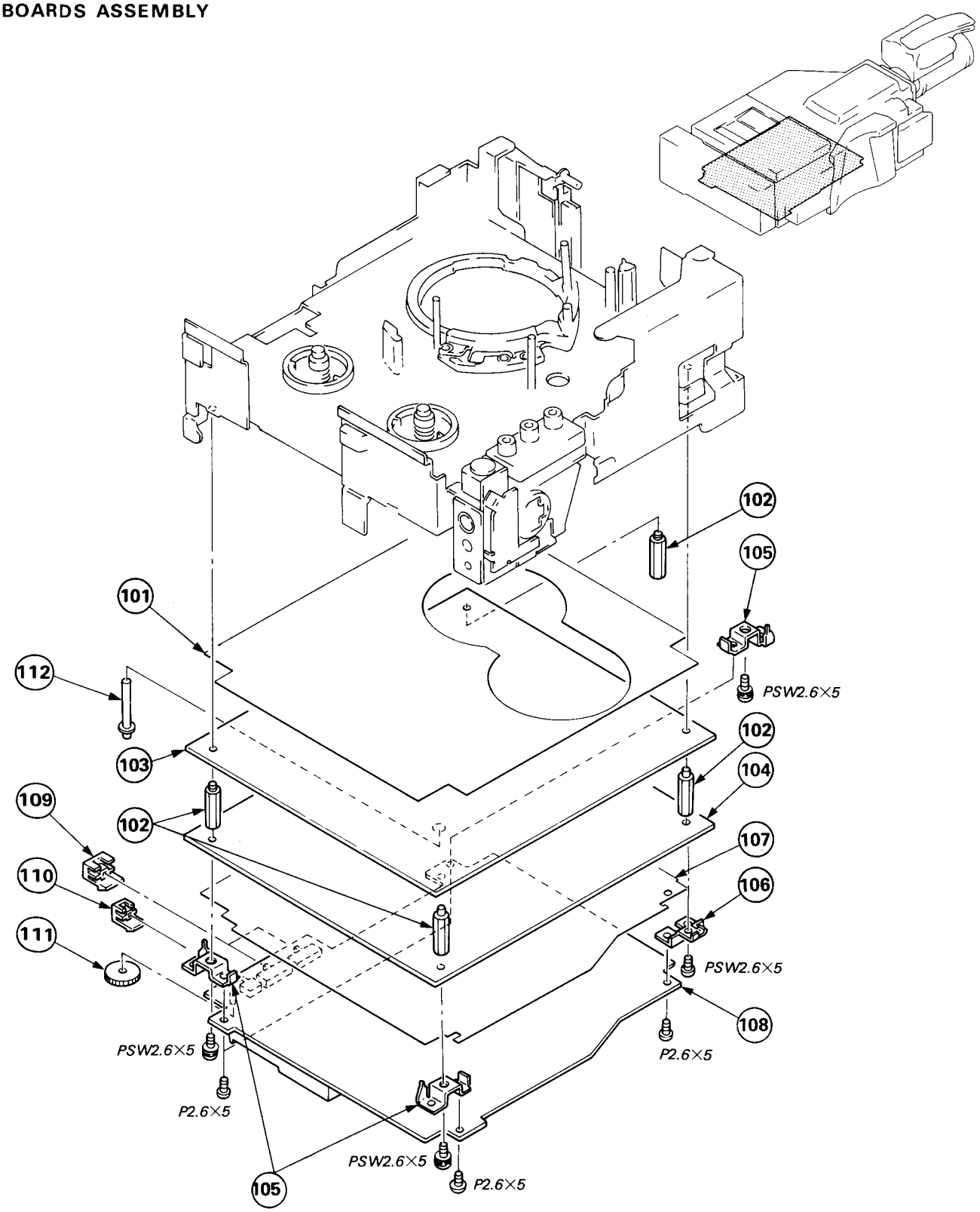
5-2. MD FRAME ASSEMBLY



No.	Part No.	Description	Remark
51	*1-627-532-11	CN-34 BOARD	
52	X-3726-126-1	HOLDER ASSY, 32P	
53	3-669-596-00	WASHER (2.3), STOPPER	
54	X-3726-125-1	SHAFT ASSY, 32P FULCRUM	
55	*3-726-184-01	FRAME, CT MD	
56	*3-726-196-01	FRAME, TB	
57	*3-726-187-01	FRAME, J MD	
58	1-571-630-11	SWITCH, TOGULE (POWER) (S901)	

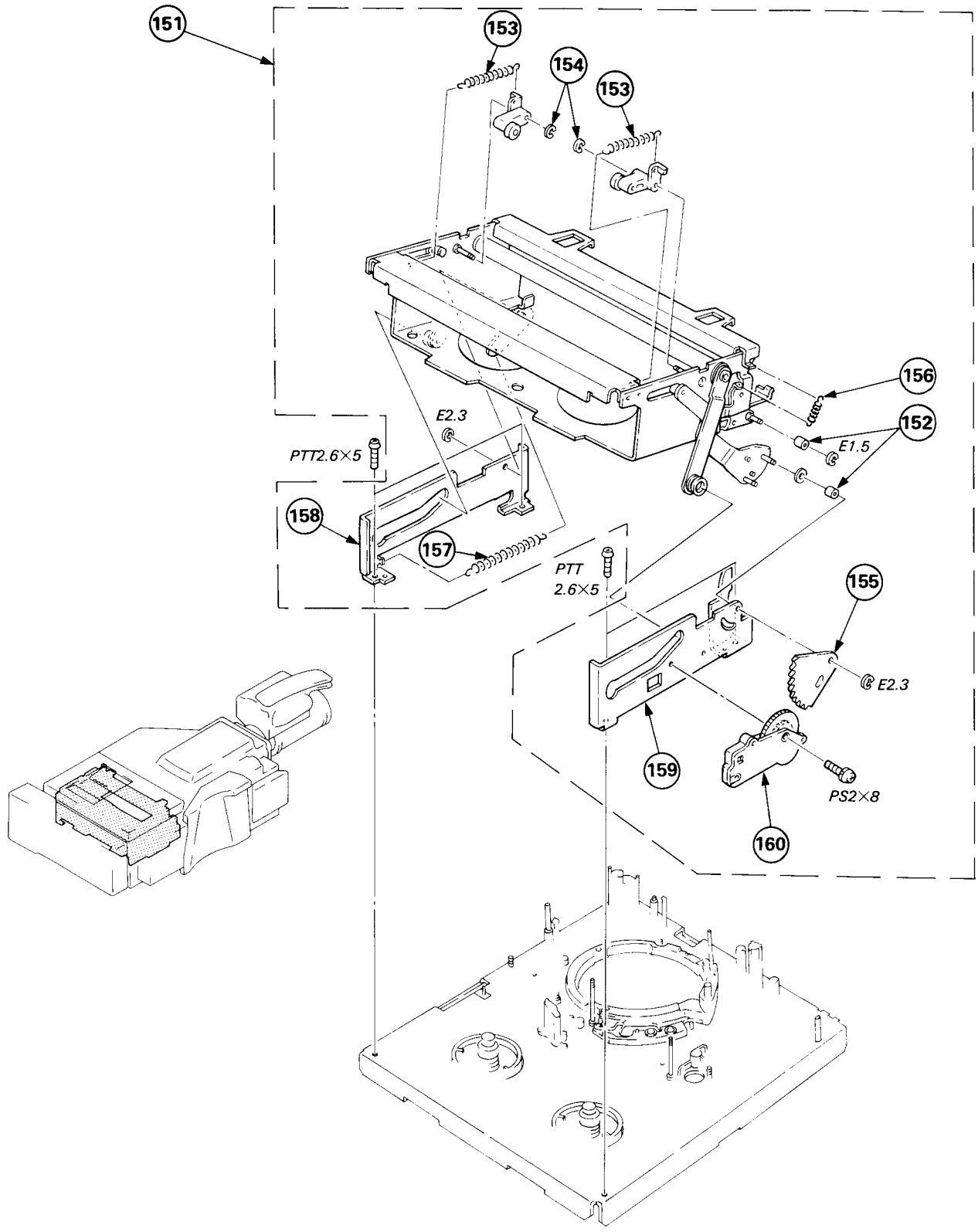
No.	Part No.	Description	Remark
59	*3-726-155-01	FRAME, CS MD	
60	*3-726-212-01	BRACKET, SHOULDER PAD	
61	*1-627-531-11	JK-36 BOARD	
62	*1-627-530-12	JK-35 BOARD	
63	*3-726-138-01	BRACKET, BOTTOM CABINET	
64	*3-726-153-01	PLATE, JACK, REAR	

5-3. BOARDS ASSEMBLY



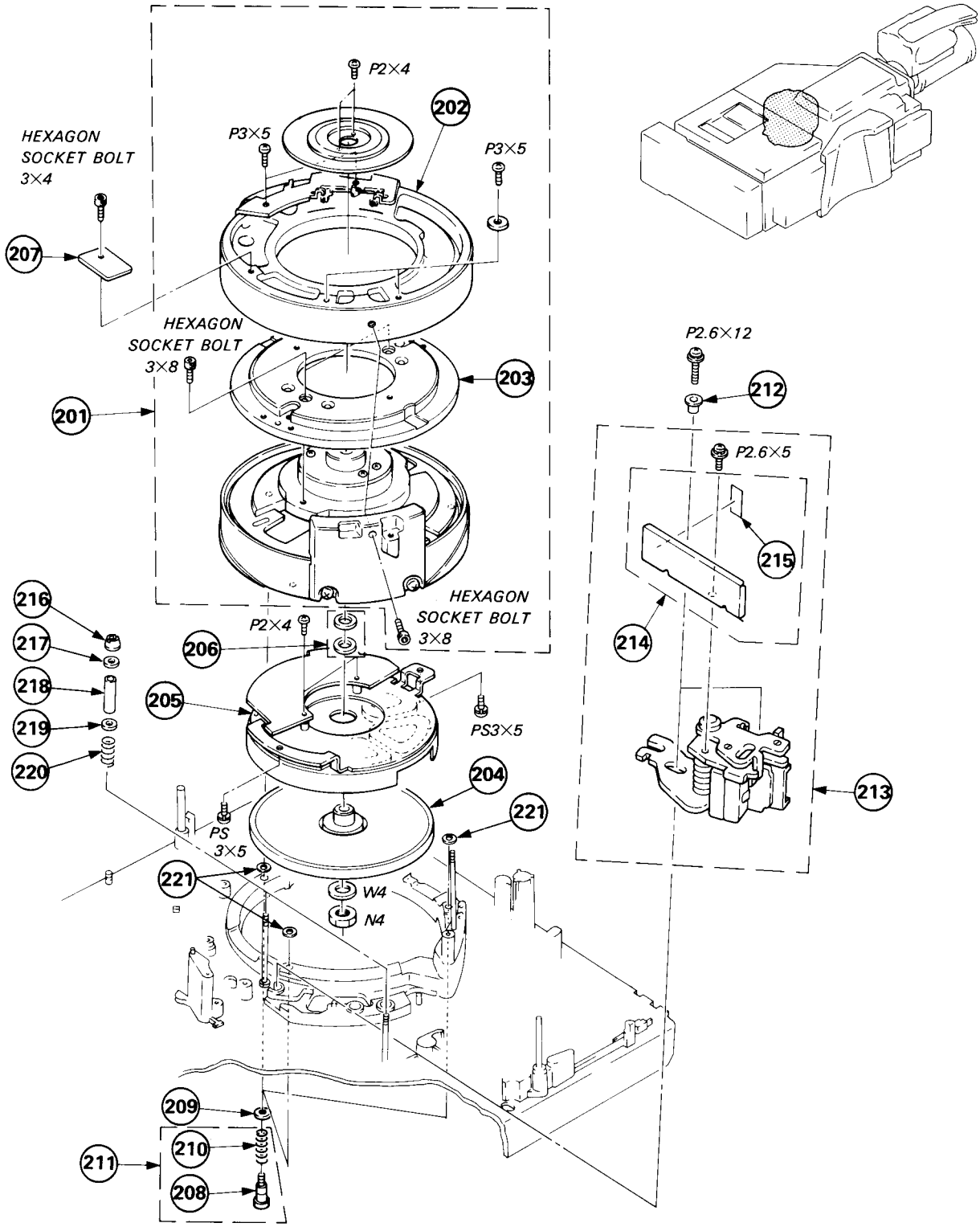
No.	Part No.	Description	Remark
101	*3-726-209-01	INSULATOR, SA	
102	3-726-154-01	SHAFT, VR GUIDE	
103	*A-6715-411-A	SA-26 BOARD, COMPLETE	
104	*A-6711-966-A	VR-19 BOARD, COMPLETE	
105	3-726-151-01	FRAME, PANEL	
106	*3-726-156-01	FRAME (CS), PANEL	
107	*3-726-210-01	INSULATOR, AV	
108	*A-6713-358-A	AD-14 BOARD, COMPLETE	
109	3-726-198-11	KNOB, SLIDE	
110	3-726-198-01	KNOB, SLIDE	
111	3-726-163-01	KNOB, SHARPNESS	
112	*3-726-274-01	RETAINER, PC BOARD	

5-4. CASSETTE COMPARTMENT ASSEMBLY



No.	Part No.	Description	Remark
151	A-6751-156-A	CASSETTE COMPARTMENT BLOCKASSY	152-160
152	3-669-381-00	ROLLER, OPEN, LID	
153	3-669-386-00	SPRING, TENSION	
154	3-669-595-00	WASHER (2), STOPPER	
155	3-678-826-00	GEAR, FAN	
156	3-678-831-00	SPRING, TENSION	
157	3-678-832-00	SPRING, TENSION	
158	*3-678-899-00	SUPPORT (LEFT)	
159	*3-678-900-00	SUPPORT (RIGHT)	
160	3-678-972-00	DAMPER	

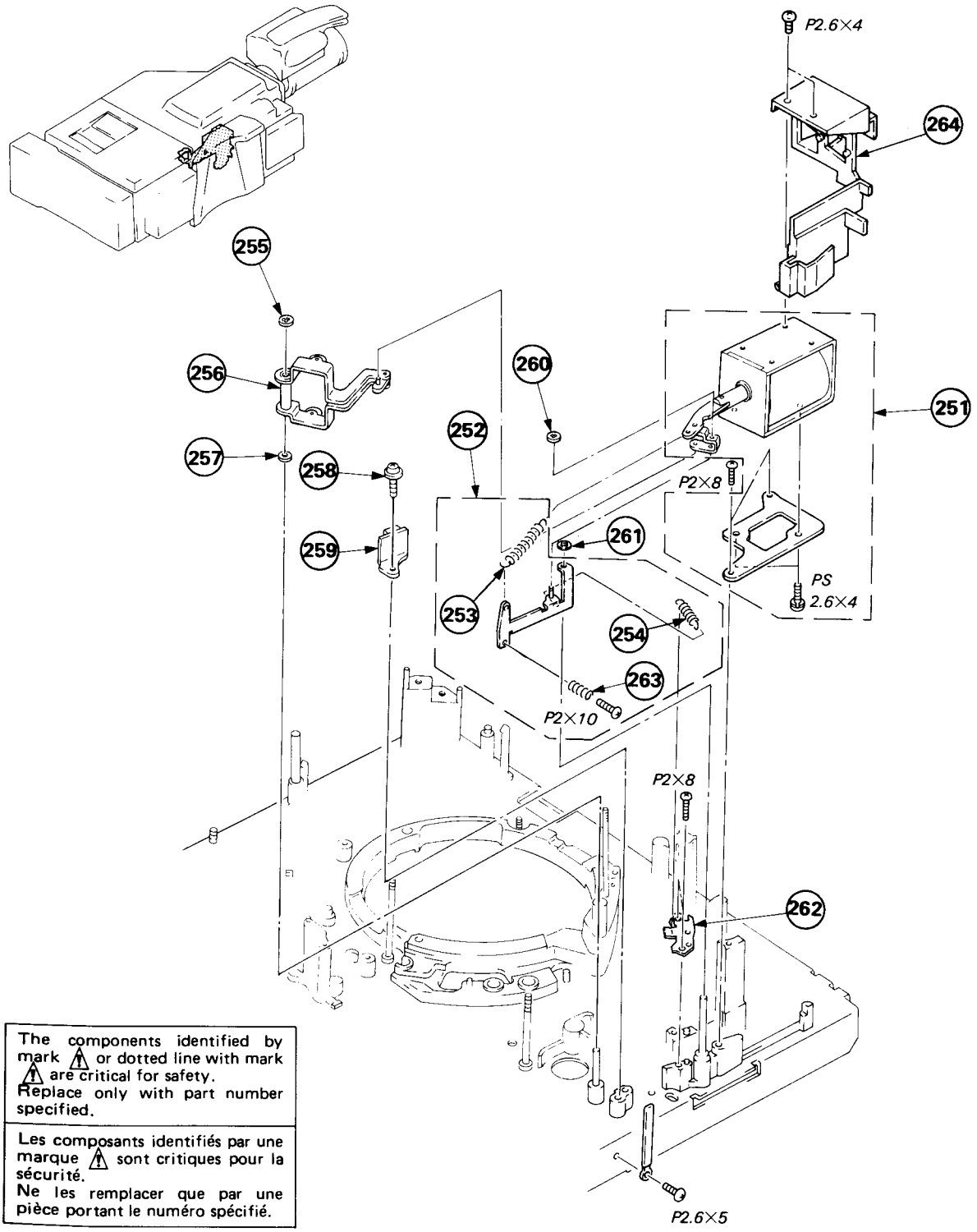
5-5. DRUM ASSEMBLY



No.	Part No.	Description	Remark
201	A-6050-562-A	DRUM ASSY (DCH-04A-R)	202-203
202	A-6760-238-A	DRUM SUB ASSY, UPPER	
203	A-6762-357-A	DISK ASSY (DCR-04-R)	
204	X-2621-202-0	ROTOR ASSY, D	
205	X-2621-204-0	STATOR ASSY, D	
206	X-3669-105-1	SPACER BLOCK ASSY	
207	1-806-230-42	SENSOR, DEW CONDENSATION	
208	3-694-212-01	SCREW, FITTING	
209	3-669-600-11	WASHER, FLAT (3.5)	
210	3-429-123-00	SPRING	
211	X-3693-838-1	SCREW ASSY, FITTING	208, 210

No.	Part No.	Description	Remark
212	3-684-247-01	BUSHING, ACE	
213	A-6761-124-A	HEAD BLOCK ASSY, ACE	214, 215
214	X-3726-110-1	PROTECTOR ASSY	215
215	3-693-904-01	SHEET (P), INSULATING	
216	A-6759-246-B	NUT, ADJUSTMENT, GUIDE	
217	3-684-135-01	WASHER (UPPER), GUIDE, #7, 8	
218	3-693-830-01	SLEEVE, GUIDE, #7,#8	
219	3-693-831-01	WASHER, GUIDE	
220	3-693-943-01	SPRING (#7,#8), COMPRESSION	
221	3-669-646-00	SPACER, DRUM	

5-6. PINCH SOLENOID ASSEMBLY



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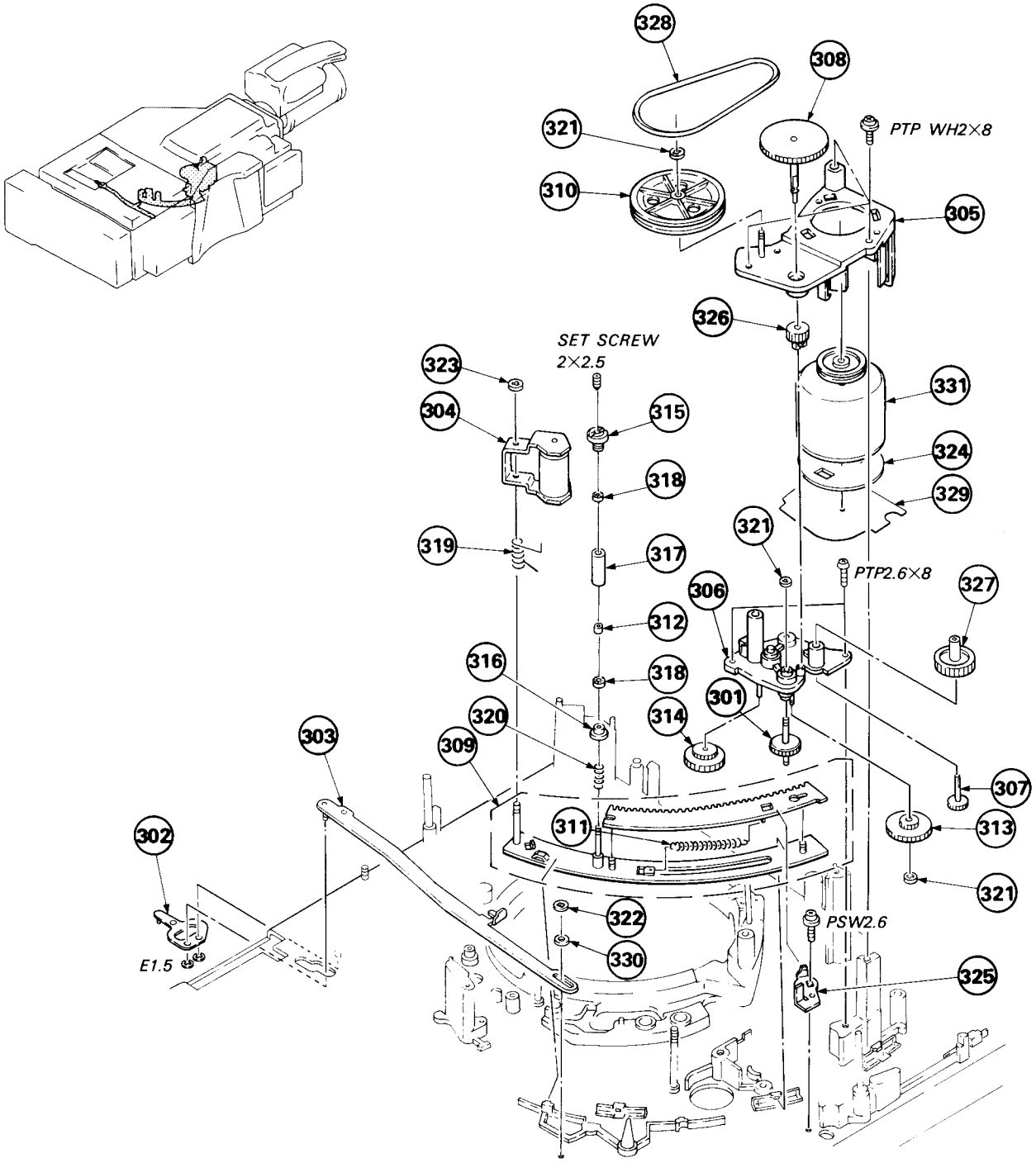
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

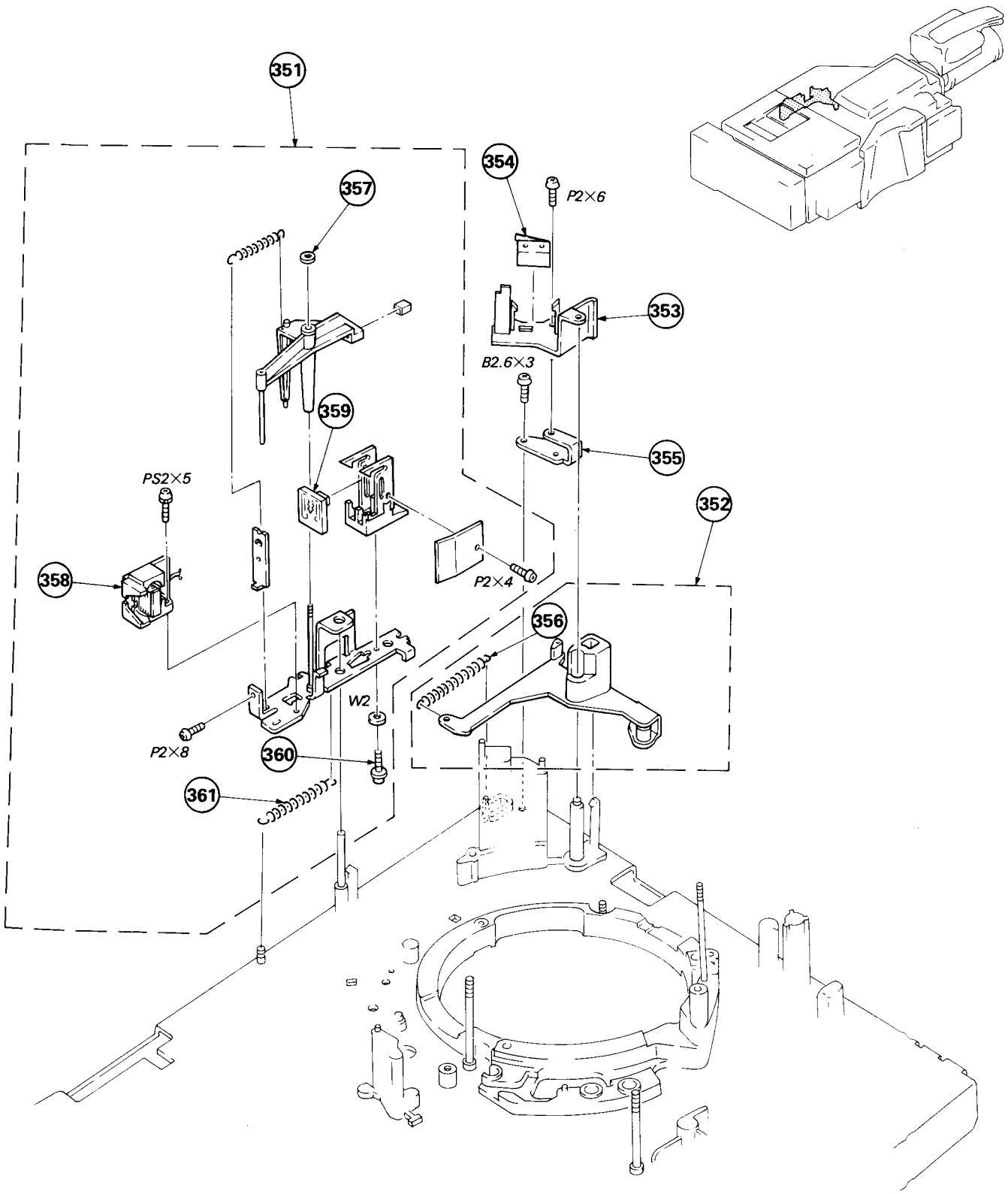
No.	Part No.	Description	Remark
251	⚠A-6749-079-A	SOLENOID BLOCK ASSY, PINCH (PM1001)	
252	*X-3678-803-0	ARM (P) ASSY, PINCH LIMITER 253/254/263	
253	3-662-752-00	SPRING, TENSION	
254	3-678-864-00	SPRING, TENSION	
255	3-669-596-00	WASHER (2.3), STOPPER	
256	*X-3678-804-0	ARM ASSY, PINCH PRESS	
257	3-701-439-01	WASHER	
258	3-669-480-11	+ PTPWH 2	
259	1-464-247-00	SENSOR, T COIL	
260	3-669-465-00	WASHER (1.5), STOPPER	
261	3-669-595-00	WASHER (2), STOPPER	
262	*3-678-851-00	PLATE, LOCK, T	
263	4-876-347-01	SPRING, COMPRESSION (CLICK LEVER)	
264	*3-726-194-01	CLAMP, BOTTOM HARNESS	

5-7. LOADING MOTOR ASSEMBLY



No.	Part No.	Description	Remark
301	X-3669-305-0	GEAR (F) ASSY	
302	X-3726-103-1	LEVER (M) ASSY, RELEASE	
303	X-3726-102-1	PLATE ASSY (M), SLIDE, IL	
304	X-3678-801-0	ARM ASSY, PINCH ROLLER	
305	*X-3678-808-0	CHASSIS ASSY, L MOTOR	
306	*X-3678-809-0	CHASSIS ASSY, DRIVE GEAR	
307	X-3678-812-0	GEAR (CD) ASSY	
308	X-3678-815-0	GEAR (BA) ASSY	
309	*X-3678-816-0	GEAR ASSY, SLIDER	311
310	X-3726-101-1	PULLEY ASSY, GEAR	
311	3-549-014-00	SPRING, TENSION	
312	3-657-841-31	SPACER (2X2.5)	
313	3-669-337-00	GEAR (D)	
314	3-669-338-00	GEAR (E)	
315	3-669-431-00	FLANGE (UPPER), GUIDE	
316	3-669-432-00	FLANGE (LOWER), GUIDE	
317	3-669-438-11	ROLLER (#9), GUIDE	
318	3-650-312-00	BEARING, BALL (NO FLANGE)	
319	3-669-444-00	SPRING, TORSION	
320	3-693-941-01	SPRING (#9), COMPRESSION	
321	3-669-465-00	WASHER (1.5), STOPPER	
322	3-669-595-00	WASHER (2), STOPPER	
323	3-669-596-00	WASHER (2.3), STOPPER	
324	*1-609-071-00	LM-11 BOARD	
325	*3-678-852-00	STOPPER, SLIDER	
326	3-678-859-00	GEAR (BC)	
327	3-678-861-00	GEAR (CB)	
328	3-726-133-01	BELT, RUBBER	
329	*3-678-891-00	INSULATOR, L MOTOR	
330	3-701-438-21	WASHER	
331	1-541-491-21	MOTOR, DC (DNR-6100A) (LOADING) (M1001)	

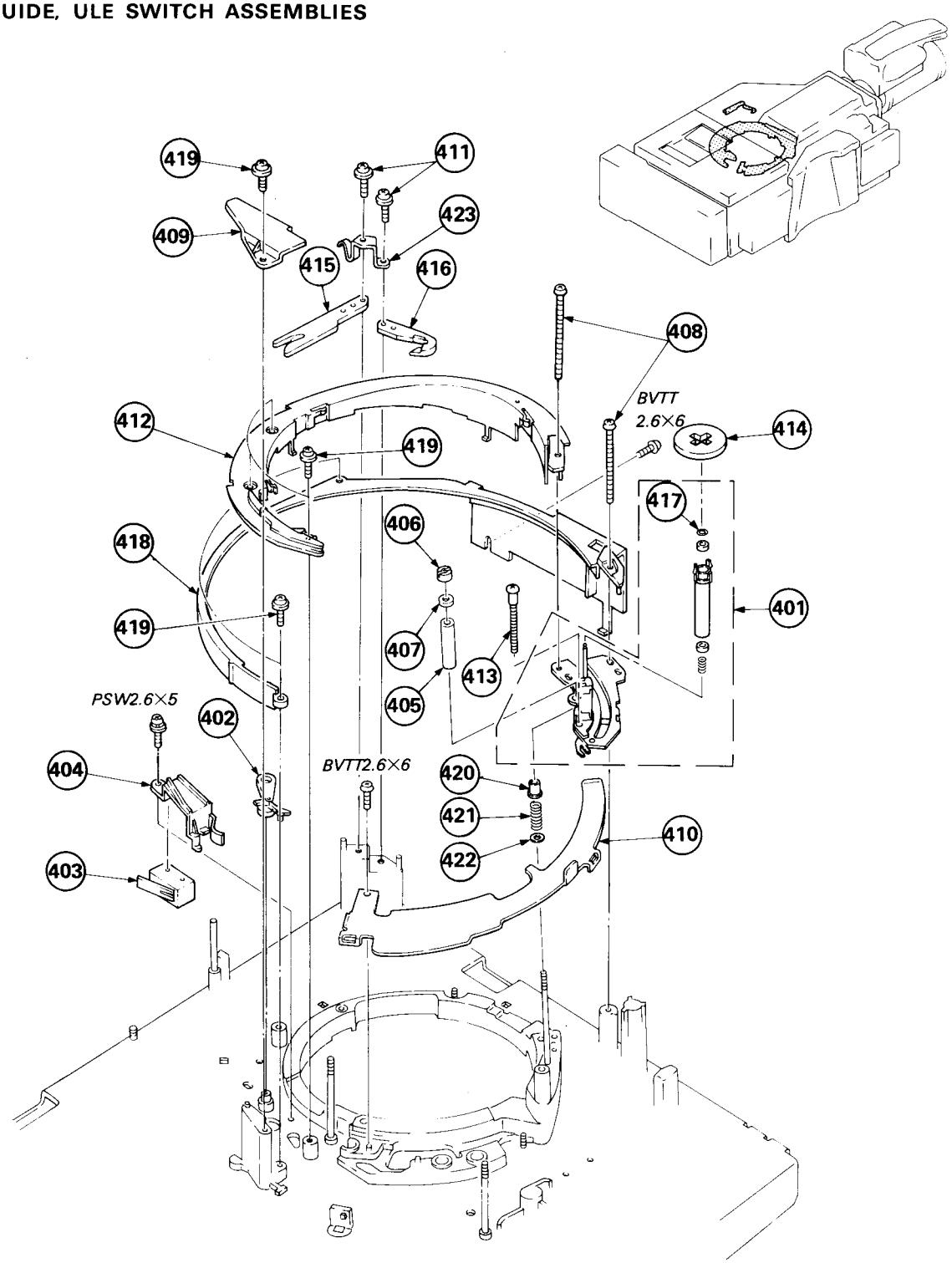
5-8. LOCK ARM ASSEMBLY



No.	Part No.	Description	Remark
351	A-6742-052-A	TP ASSY	357-361
352	X-3678-819-0	ARM ASSY, LOCK	356
353	*3-678-834-00	BRACKET, LE SWITCH	
354	1-553-720-00	SWITCH, MICRO (LOADING END) (S903)	
355	*3-678-896-00	STAY, FITTING	
356	3-531-860-00	SPRING, TENSION	

No.	Part No.	Description	Remark
357	3-669-465-00	WASHER (1.5), STOPPER	
358	1-464-246-00	SENSOR, S COIL	
359	1-806-633-00	ELEMENT, MAGNETIC RESISTOR	
360	3-686-528-01	SCREW (2X6), +	
361	3-535-531-00	SPRING, TENSION	

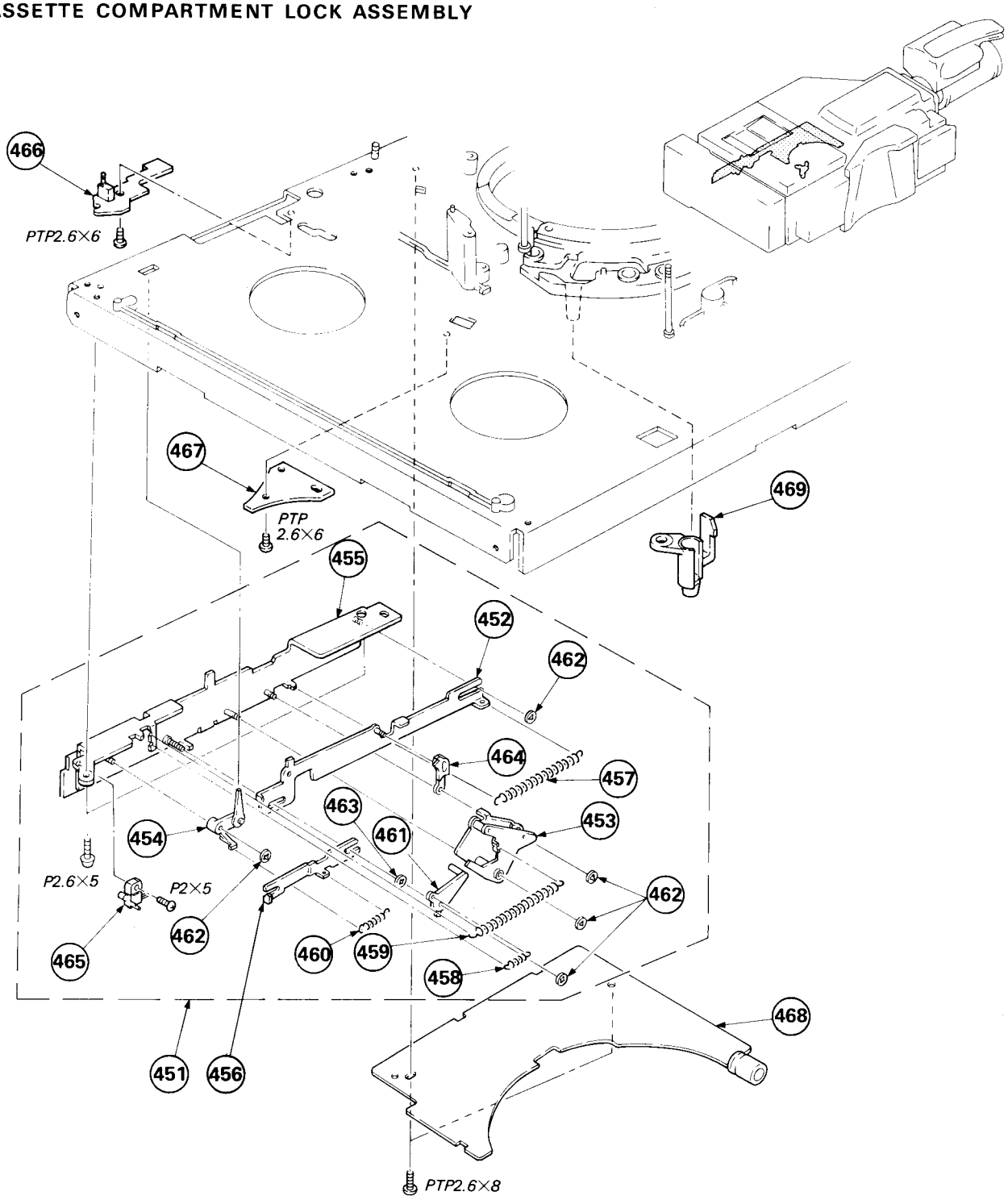
5-9. SHUTTLE GUIDE, ULE SWITCH ASSEMBLIES



No.	Part No.	Description	Remark
401	A-6736-074-A	BASE BLOCK ASSY, SLANT	417
402	X-3669-327-0	ARM ASSY, SWITCH, ULE	
403	1-553-720-00	SWITCH, MICRO (UNLOADING END) (S902)	
404	3-726-177-01	HOLDER (C), ULE SWITCH	
405	3-691-830-01	SLEEVE, GUIDE, #6	
406	3-669-446-00	NUT, GUIDE, NO. 6	
407	3-679-910-00	FLANGE (S), GUIDE, NUMBER 6	
408	3-730-907-01	SCREW (M2.6X25)	
409	3-669-476-04	PLATE, GUIDE	
410	*3-684-176-04	RECLINER, PIN	
411	3-669-480-00	+ PTPWH 2	
412	*3-679-290-00	GUIDE (1-YA), SHUTTLE	

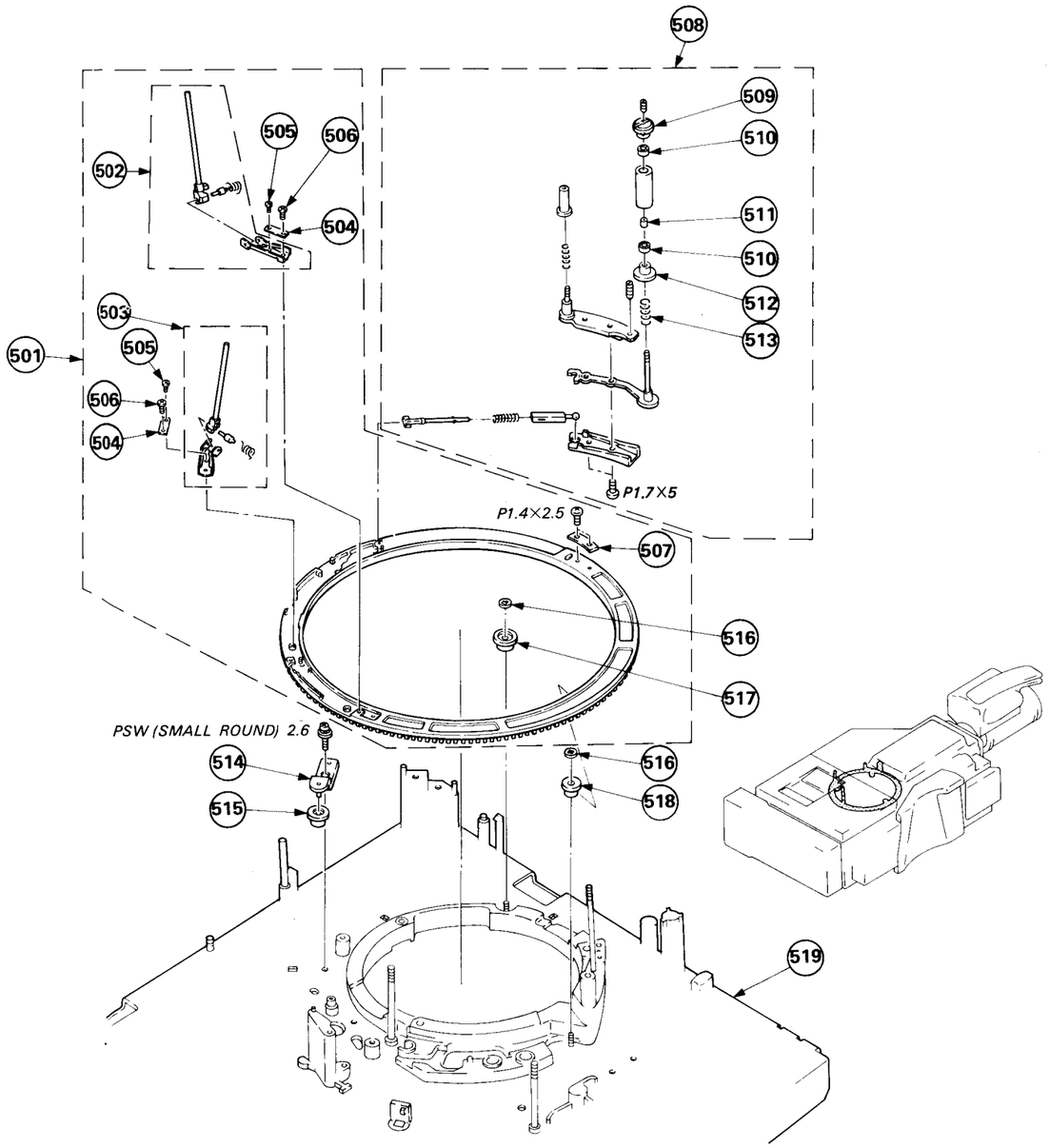
No.	Part No.	Description	Remark
413	3-669-606-00	SCREW (2.6)	
414	3-720-225-01	ROLLER (WEIGHT)	
415	*3-669-618-00	PLATE (2), ADJUSTMENT	
416	*3-672-507-00	PLATE (3-1), ADJUSTMENT	
417	3-315-384-31	WASHER, STOPPER	
418	3-678-935-00	GUIDE (2), SHUTTLE	
419	3-669-480-11	+ PTPWH 2	
420	3-720-221-01	SPACER	
421	3-721-333-01	SPRING, COMPRESSION	
422	3-701-437-71	WASHER	
423	*3-726-142-01	PLATE, GROUND	

5-10. CASSETTE COMPARTMENT LOCK ASSEMBLY



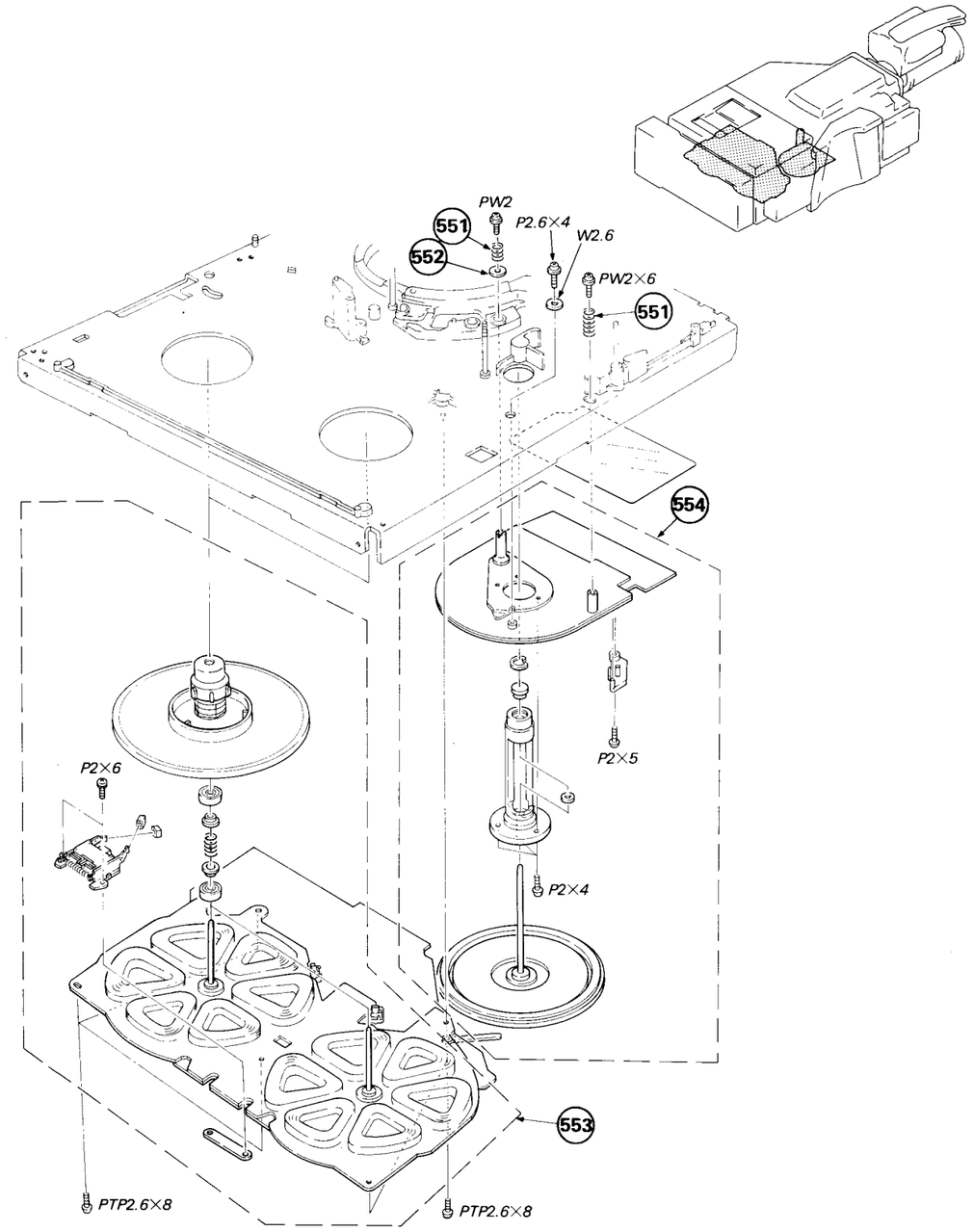
No.	Part No.	Description	Remark
451	A-6751-388-A	SW BLOCK ASSY	452-455, 457-465
452	*X-3669-376-0	PLATE ASSY, SLIDE, RELEASE	
453	*X-3669-377-0	LEVER ASSY, LOCK	
454	X-3678-811-0	LEVER ASSY, CI	
455	X-3678-817-0	CHASSIS ASSY, LOCK	
456	3-726-130-01	STOPPER (SA)	
457	3-567-029-00	SPRING, TENSION	
458	3-509-123-00	SPRING, TENSION	
459	3-531-893-00	SPRING, TENSION	
460	3-570-896-00	SPRING, TENSION	
461	*3-669-414-00	LEVER, HOLDING, IL	
462	3-669-465-00	WASHER (1.5), STOPPER	
463	3-669-596-00	WASHER (2.3), STOPPER	
464	*3-669-670-00	LEVER, LOCK, L	
465	1-570-771-11	SWITCH (CASSETTE IN) (S904)	
466	*1-627-536-11	RP-62 BOARD	
467	*1-627-535-11	ES-14 BOARD	
468	*A-6715-410-A	MB-17 BOARD, COMPLETE	

5-11. THREADING RING ASSEMBLY



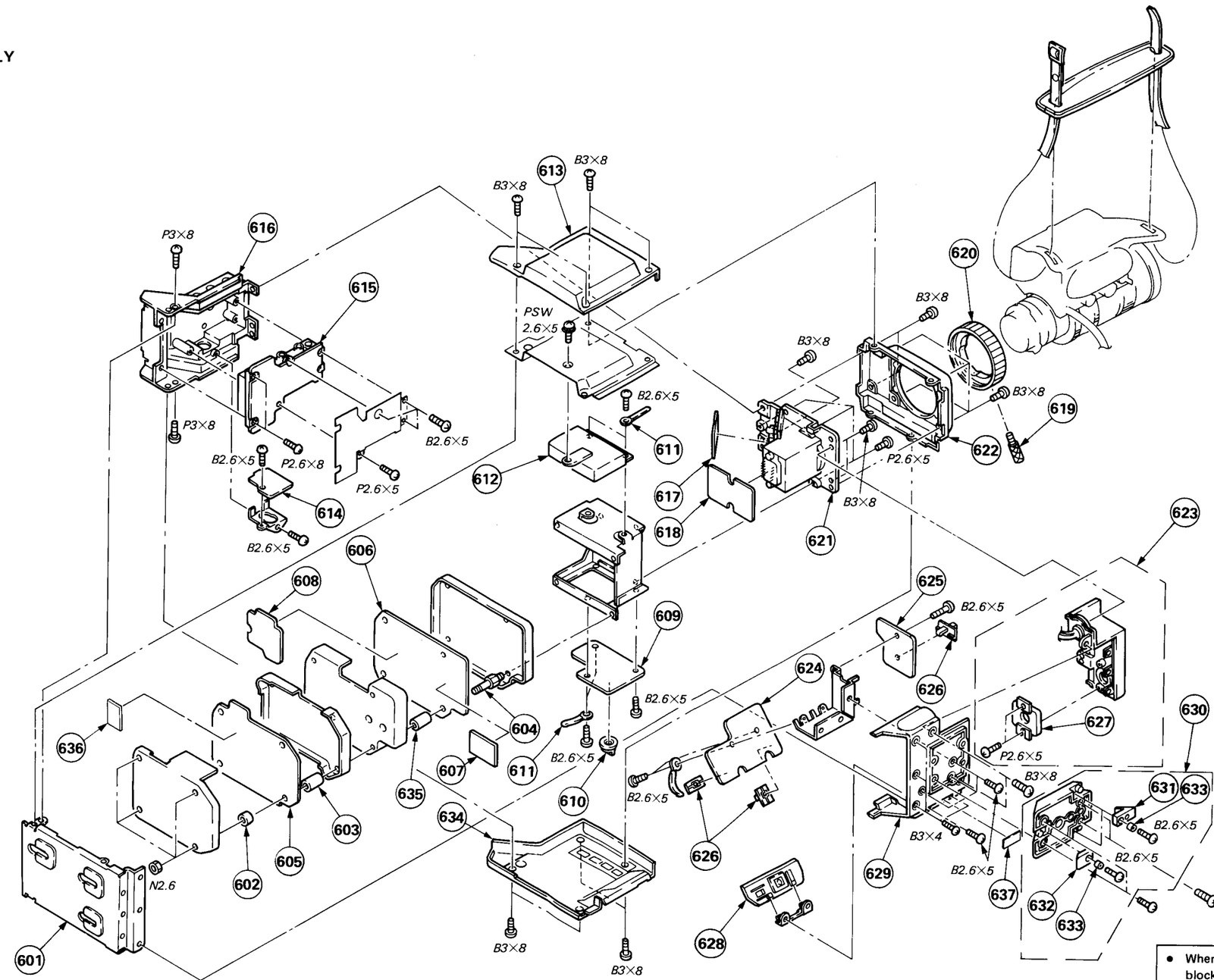
No.	Part No.	Description	Remark
501	X-3726-105-1	RING ASSY, THREADING, S	502-507
502	X-3669-430-0	HOLDER BLOCK ASSY, #3 GUIDE	
503	X-3669-429-0	HOLDER BLOCK ASSY, #2 GUIDE	
504	*A-6759-107-C	RETAINER, SPRING, LEAF	
505	3-669-478-00	SCREW (1X3), TAPPING	
506	3-672-586-00	SCREW (1.4X3), TAPPING	
507	*3-669-616-00	RETAINER	
508	A-6750-227-A	SHUTTLE(6)BLOCK ASSY,THREADING	509-513
509	3-669-431-00	FLANGE (UPPER), GUIDE	
510	3-650-312-00	BEARING, BALL (NO FLANGE)	
511	3-657-841-31	SPACER (2X2.5)	
512	3-669-667-00	FLANGE (LOWER), GUIDE	
513	3-693-944-01	SPRING (#5), COMPRESSION	
514	X-3669-329-0	PLATE ASSY, ADJUSTMENT	
515	3-669-360-00	ROLLER, RING	
516	3-669-465-00	WASHER (1.5), STOPPER	
517	3-669-630-00	ROLLER (C), RING	
518	3-669-597-00	ROLLER (B), RING	
519	*X-3726-106-1	CHASSIS ASSY, MECHANICAL	

5-12. REEL MOTOR, CAPSTAN MOTOR ASSEMBLIES



No.	Part No.	Description	Remark
551	3-669-602-00	SPRING, COMPRESSION	
552	3-669-697-00	SPACER, CAPSTAN	
553	8-838-041-01	MOTOR, DC (BHF-1801A) (REEL)	(M903)
554	8-835-333-01	MOTOR, DC BHF-1923A (CAPSTAN)	(M902)

5-13. CAMERA ASSEMBLY



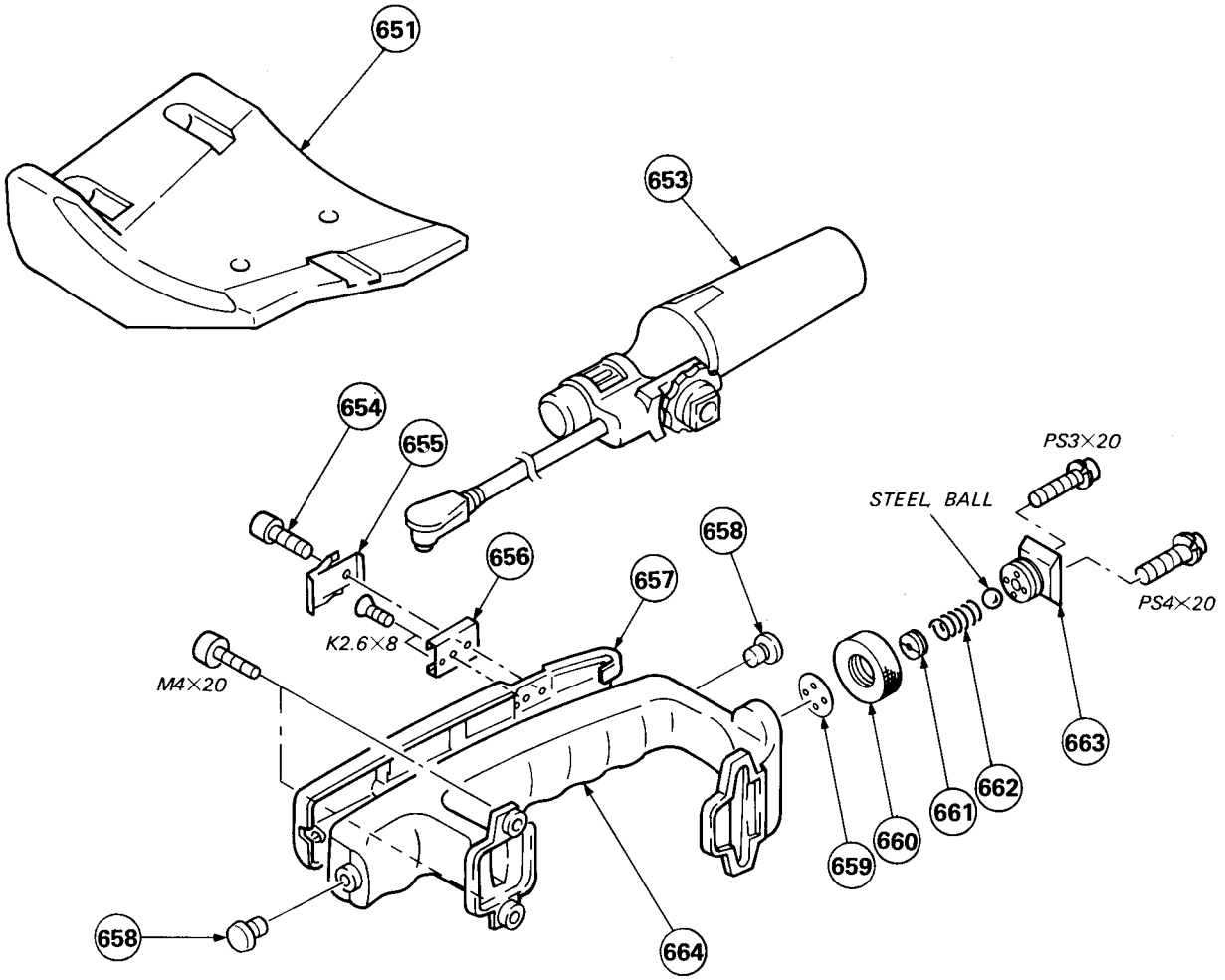
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- When replacing the CCD imager, be sure to replace the CCD block assembly. The CCD imager alone can not be replaced.
- When the CCD block assembly has been replaced, perform the overall camera block adjustment.

No.	Part No.	Description	Remark
601	A-6773-018-A	CABINET (REAR) ASSY	
602	3-726-125-01	SPACER (A)	
603	3-726-126-01	SPACER (B)	
604	3-726-112-01	SCREW (A)	
605	*A-7051-179-A	EM-3 BOARD, COMPLETE	636
606	*A-7051-178-A	TP-47 BOARD, COMPLETE	607, 608
607	A-7068-130-A	DT-72 BOARD, COMPLETE	
608	*A-7061-187-A	GM-4 BOARD, COMPLETE	
609	*A-7070-687-A	SW-84 BOARD, COMPLETE	
610	3-720-569-11	KNOB, SHUTTER	
611	*3-678-684-00	HOLDER, CABLE	
612	⚠.1-464-992-21	CONVERTER UNIT, DC-DC	
613	3-726-199-01	PLATE (LEFT), SIDE	
614	*1-627-447-11	EV-2 BOARD	
615	*A-7061-177-A	JK-37 BOARD, COMPLETE	
616	3-726-204-01	CABINET (UPPER)	
617	*A-7070-686-A	IM-4C BOARD, COMPLETE	
618	*A-7070-685-A	IM-4Y BOARD, COMPLETE	
619	3-726-253-01	LEVER, MOUNT	
620	*A-6759-420-A	MOUNTED PCB, LENS	
621	*A-6771-057-A	CCD BLOCK ASSY	619, 620
622	3-726-202-01	CABINET (FRONT)	
623	X-3726-122-1	CABINET (LOWER FRONT) ASSY	627
624	*A-7070-689-A	SW-86 BOARD, COMPLETE	
625	*A-7070-688-A	SW-85 BOARD, COMPLETE	
626	3-726-258-01	KNOB (CF), SLIDE	
627	X-3726-121-1	BUTTON (SS) ASSY	
628	X-3726-119-1	PLATE ASSY, ORNAMENTAL, CF	
629	3-726-205-01	CABINET (LOWER)	
630	X-3664-212-2	SHOE ASSY (B), T	631-633
631	3-675-963-02	FOOT, FRONT, RUBBER	
632	3-675-964-01	FOOT, REAR, RUBBER	
633	3-675-965-01	SPACER (2.6X2)	
634	X-3726-120-1	PLATE (R) ASSY, SIDE	
635	3-726-125-11	SPACER (A)	
636	*A-7051-316-A	MR-18 BOARD, COMPLETE	
637	*3-726-231-01	LABEL, MODEL NUMBER (U/C)	

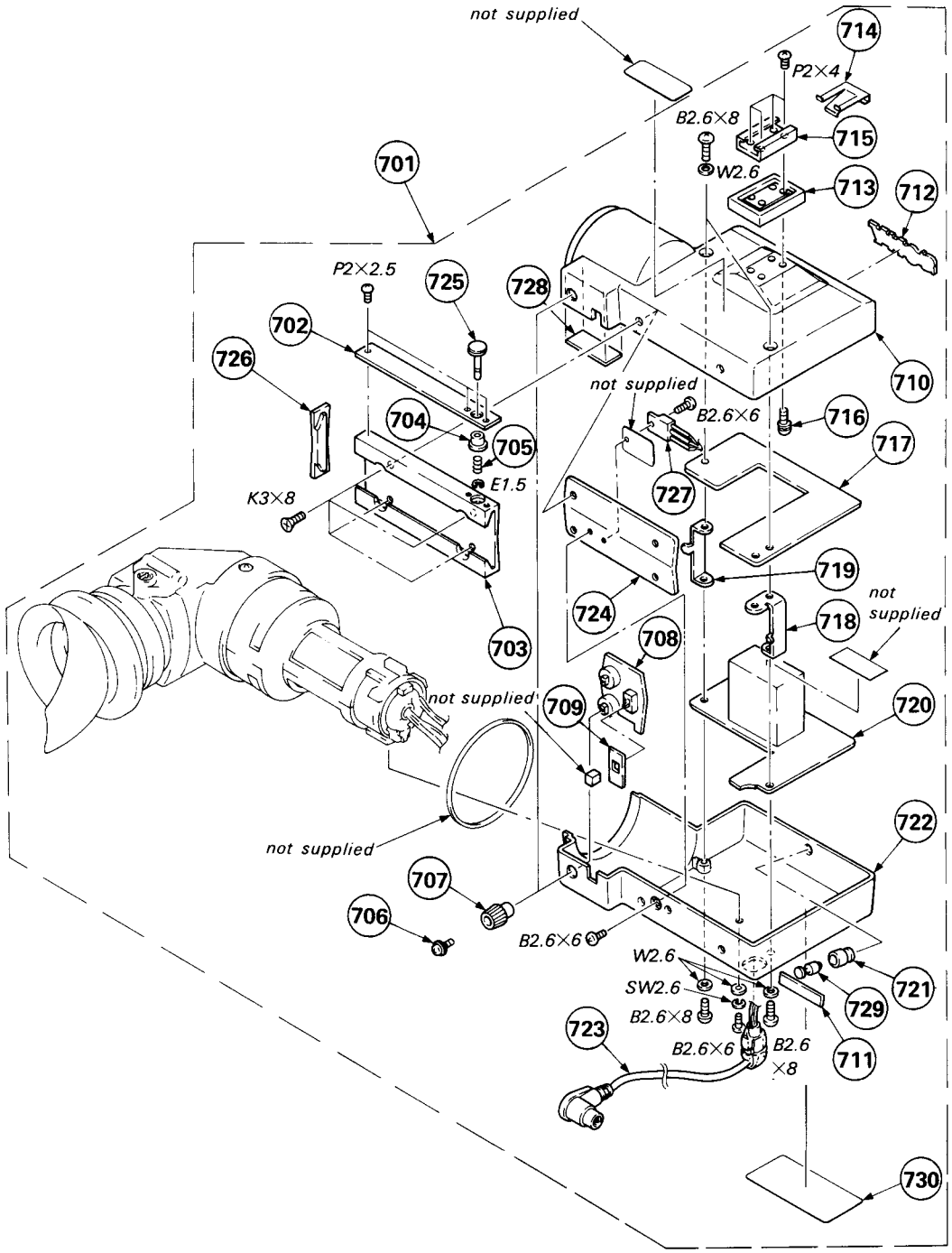
5-14. HANDLE ASSEMBLY



No.	Part No.	Description	Remark
651	3-726-222-01	PAT, SHOULDER	
653	1-542-109-11	MICROPHONE, STEREO	
654	3-681-544-00	SCREW, STOPPER, ACC SHOE	
655	3-681-543-00	SPRING, LEAF	
656	3-681-542-00	SHOE, ACC	
657	3-726-193-01	LID, HANDLE	

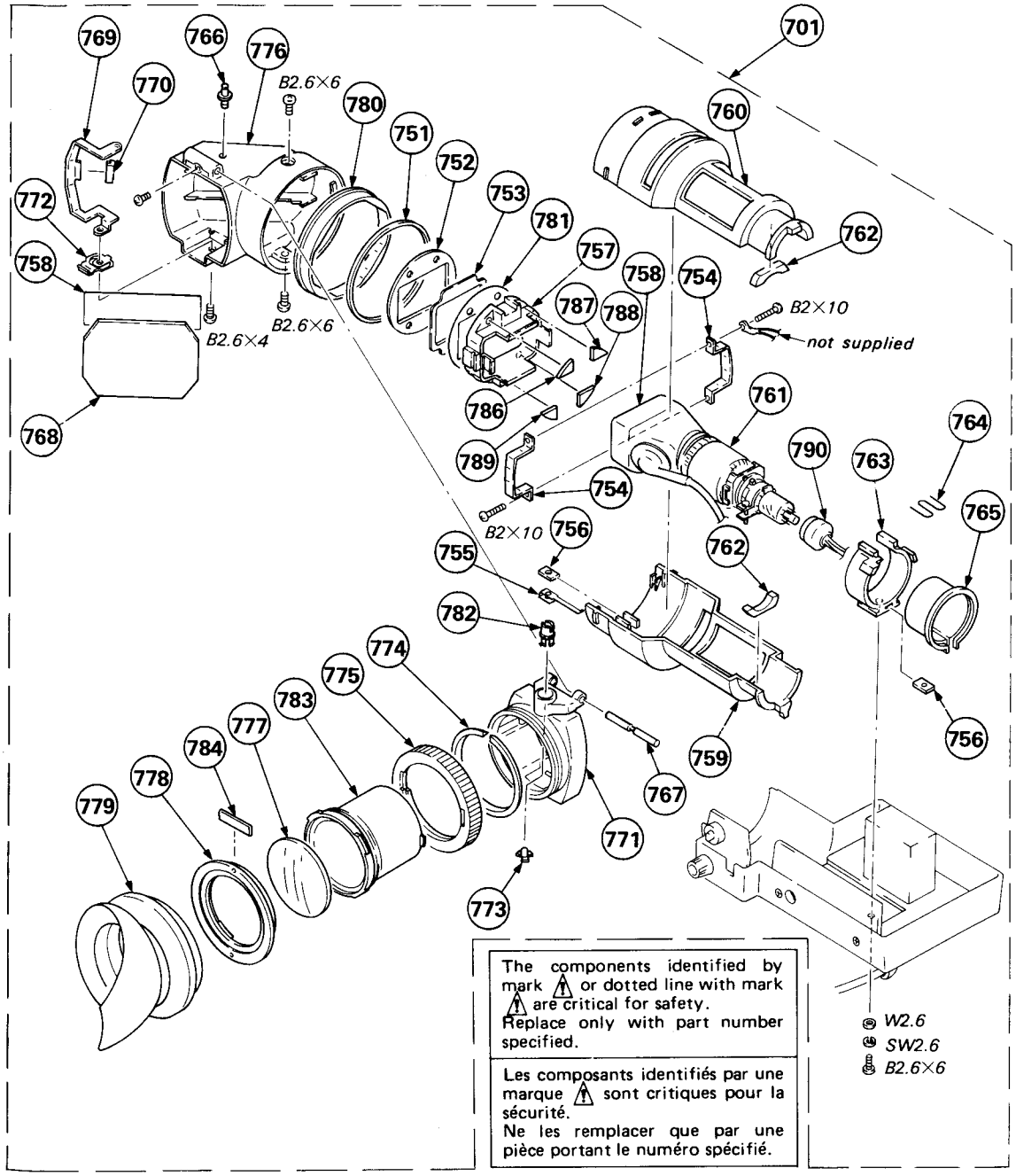
No.	Part No.	Description	Remark
658	3-725-907-01	BUSHING, BLIND	
659	*3-682-758-01	SPACER	
660	*3-682-759-01	RING, LOCK	
661	*3-682-760-01	SCREW (M7-0.75), ADJUSTMENT	
662	3-641-622-00	SPRING, COMPRESSION	
663	*3-682-718-02	SHOE, VF SLIDE	
664	3-726-208-01	HANDLE	

5-15. EVF ASSEMBLY (1)



No.	Part No.	Description	Remark
701	A-6708-448-A	MAIN ASSY (DXF-C50), EVF	702-730, 751-789
702	*2-277-463-01	LABEL, SLIDE BLOCK	
703	*2-277-459-03	GUIDE, VF SLIDE	
704	*2-277-456-00	COLLAR, STOPPER	
705	2-277-466-01	SPRING, COMPRESSION	
706	3-303-809-41	SCREW (M1.7X4.5), SPECIAL HEAD	
707	*2-277-453-00	KNOB, CONTROL	
708	*1-627-580-11	SW-98 BOARD	
709	3-726-227-01	COVER (KNOB)	
710	*3-688-719-01	COVER (UPPER), VF	
711	*1-627-585-11	LW-6 BOARD	
712	*3-566-707-00	EMBLEM, SONY	
713	3-726-280-01	DAMPER, MICROPHONE	
714	3-688-754-11	SPRING	
715	*3-688-755-01	SHOE, ACCESSORY	
716	3-686-423-01	SCREW, FITTING, STATOR	
717	*A-6711-967-A	VF-17 BOARD, COMPLETE	
718	*2-381-427-00	STOPPER, PC BOARD	
719	*2-277-452-00	BRACKET (B), PC BOARD	
720	*A-6711-968-A	VF-18 BOARD, COMPLETE	
721	*2-381-421-00	HOLDER, LED	
722	*3-688-720-01	COVER (LOWER), VF	
723	1-574-126-11	CORD, CONNECTION (8P PLUG CORD)	
724	*3-688-718-02	NUT, PLATE, CASE	
725	2-277-457-00	KNOB, STOPPER	
726	*2-277-458-00	RUBBER, STOPPER	
727	8-729-904-32	TRANSISTOR 2SB1185-E (Q009)	
728	*2-277-454-00	CUSHION, SWITCH	
729	*3-726-237-11	SPACER (LED)	
730	*3-726-228-01	LABEL, MODEL NUMBER (UC)	

5-16. EVF ASSEMBLY (2)


B2.6×6
B2.6×6
B2.6×4
B2×10
not supplied
B2×10
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.
W2.6
SW2.6
B2.6×6

No.	Part No.	Description	Remark
751	3-561-892-00	BELT, COUNTER	
752	*3-726-224-01	PLATE, ORNAMENTAL, CRT	
753	*2-277-464-00	ILLUMINATOR	
754	*2-381-423-00	BAND, CRT	
755	*2-277-469-01	TERMINAL, VF GROUND	
756	*3-673-015-00	PLATE, NUT (M2.6)	
757	*2-381-419-00	HOLDER, CRT	
758	⚠ 1-546-043-11	CATHODE-RAY TUBE (40LB4) (V901)	
759	*2-381-428-06	CASE (REAR) (1), CRT	
760	*2-381-429-06	CASE (REAR) (2), CRT	
761	⚠ 1-451-233-00	DEFLECTION YOKE (L903)	
762	*2-381-420-00	RETAINER, CRT	
763	*2-381-476-01	HOLDER (B), CRT CASE	
764	*2-381-424-11	SPRING	
765	*2-381-477-01	RING (C)	
766	2-381-468-01	PIN, STOPPER	
767	*2-381-462-01	PIN	
768	*2-381-411-00	MIRROR	
769	*2-381-471-01	HOLDER, MIRROR	
770	*3-678-515-11	EDGING, RUBBER	

No.	Part No.	Description	Remark
771	*2-381-473-02	LID	
772	*2-381-478-02	CLAW, LOCK	
773	2-381-461-02	PIN, BLIND	
774	*2-381-466-01	RING, RETAINER	
775	*2-381-467-01	RING (2), LENS	
776	*2-381-469-01	TUBE, VF	
777	*3-657-626-00	LOUPE, FINDER	
778	*2-381-426-01	RING, LENS	
779	3-726-295-01	EYE CUP (3)	
780	*2-381-409-03	RING, SLEEVE	
781	*2-381-463-01	SHEET, ADHESIVE, LABEL	
782	*2-381-472-02	STOPPER	
783	*2-381-470-02	HOLDER, LENS	
784	3-730-717-01	SPACER (LENS RING)	
785	*3-726-225-01	SHEET, ADHESIVE	
786	*1-627-581-11	LW-2 BOARD	
787	*1-627-582-11	LW-3 BOARD	
788	*1-627-583-11	SW-4 BOARD	
789	*1-627-584-11	LW-5 BOARD	
790	1-526-540-00	SOCKET, PICTURE TUBE (A101)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- –XX, –X mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS
  In each case, U : μ, for example:
  UA...: μA..., UPA...: μPA..., UPB...: μPB..., UPC...: μPC..., UPD...: μPD...
- CAPACITORS
  MF : μF, PF : μμF
- COILS
  MMH : mH, UH : μH

Ref.No	Part No.	Description				Remark
	*1-627-447-12	EV-2 BOARD (Ref. No. 1000 series) **********				
		CAPACITOR				
C931	1-126-103-11	ELECT	470MF	20%	16V	
		CONNECTOR				
CN934	1-562-183-00	SOCKET 8P (VIEW FINDER)				
		FUSE				
F901⚠	1-532-772-21	FUSE, MICRO (SECONDARY) (400mA)				
**********						
	*A-7061-177-A	JK-37 BOARD, COMPLETE (Ref. No. 2000 ********** series)				
	*3-726-230-01	COVER, MULTI				
		CAPACITOR				
C951	1-124-589-11	ELECT	47MF	20%	10V	
C952	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C953	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C954	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C955	1-124-589-11	ELECT	47MF	20%	10V	
C956	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C957	1-124-589-11	ELECT	47MF	20%	16V	
C958	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
		CONNECTOR				
CN951	1-565-566-11	CONNECTOR (PLUG) 32P				
CN953	*1-506-467-11	PIN, CONNECTOR 2P				
CN954	*1-506-474-11	PIN, CONNECTOR 9P				
CN955	*1-506-467-11	PIN, CONNECTOR 2P				
CN956	*1-506-467-11	PIN, CONNECTOR 2P				
CN957	1-565-565-11	CONNECTOR, ROUND TYPE6P (MIC)				
		DIODE				
D951	8-719-106-71	DIODE RD12M-B2				
D952	8-719-106-71	DIODE RD12M-B2				
D953	8-719-106-71	DIODE RD12M-B2				
D954	8-719-106-71	DIODE RD12M-B2				
D955	8-719-106-71	DIODE RD12M-B2				
D956	8-719-106-71	DIODE RD12M-B2				
D957	8-719-106-71	DIODE RD12M-B2				
D958	8-719-106-71	DIODE RD12M-B2				
D959	8-719-106-71	DIODE RD12M-B2				
D960	8-719-106-71	DIODE RD12M-B2				
D961	8-719-106-71	DIODE RD12M-B2				
D963	8-719-106-71	DIODE RD12M-B2				
D965	8-719-106-71	DIODE RD12M-B2				
D966	8-719-106-71	DIODE RD12M-B2				
D967	8-719-106-71	DIODE RD12M-B2				

Ref.No	Part No.	Description				Remark
		FUSE				
F951⚠	1-532-595-00	FUSE, GLASS TUBE (125V 3.15A)				
		JACK				
J951	1-507-797-21	JACK, LARGE TYPE (MIC L/R)				
		RESISTOR				
R850	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R851	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R854	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R855	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R856	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R859	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R860	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R863	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R864	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R865	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R866	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R867	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R868	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R869	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R870	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R951	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R961	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R962	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R963	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R964	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
**********						
	*A-7051-178-A	TP-47 BOARD, COMPLETE (Ref. No. 1000 ********** series)				
	*A-7068-130-A	DT-72 BOARD, COMPLETE				
	*3-723-155-01	SPACER, TP				
	*3-723-156-01	SPACER, GM				
		CAPACITOR				
C201	1-126-206-11	ELECT (CHIP)	100MF	20%	6.3V	
C202	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C203	1-126-206-11	ELECT (CHIP)	100MF	20%	6.3V	
C204	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C205	1-135-161-21	TANTAL. CHIP	22MF	20%	10V	
C206	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C207	1-135-161-21	TANTAL. CHIP	22MF	20%	10V	
C208	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	
C209	1-126-203-21	ELECT (CHIP)	33MF	20%	25V	
C210	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C211	1-126-203-21	ELECT (CHIP)	33MF	20%	25V	
C212	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C213	1-126-202-21	ELECT (CHIP)	22MF	20%	35V	
C214	1-163-077-00	CERAMIC CHIP	0.1MF		50V	

Ref.No	Part No.	Description		Remark
C215	1-126-202-21	ELECT (CHIP) 22MF	20%	35V
C216	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C217	1-126-198-11	ELECT (CHIP) 4.7MF	20%	35V
C218	1-126-198-11	ELECT (CHIP) 4.7MF	20%	35V
C219	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C220	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C221	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C222	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C223	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C224	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C225	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C226	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C227	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C228	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C229	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C230	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C231	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C247	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C301	1-126-206-11	ELECT (CHIP) 100MF	20%	6.3V
C302	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C309	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C311	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C312	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C313	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C315	1-162-638-11	CERAMIC CHIP 1MF		16V
C316	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C319	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C320	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C321	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C322	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C323	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C324	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C325	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C326	1-162-638-11	CERAMIC CHIP 1MF		16V
C327	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C328	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C329	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C330	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C331	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C332	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C333	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C334	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C335	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C336	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C337	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C339	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C340	1-162-638-11	CERAMIC CHIP 1MF		16V
C341	1-162-638-11	CERAMIC CHIP 1MF		16V
C342	1-162-638-11	CERAMIC CHIP 1MF		16V
C344	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C345	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C346	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C347	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C348	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C349	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C350	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C351	1-162-638-11	CERAMIC CHIP 1MF		16V
C352	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C353	1-162-638-11	CERAMIC CHIP 1MF		16V
C403	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C404	1-126-206-11	ELECT (CHIP) 100MF	20%	6.3V
C405	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C431	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C432	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C433	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C434	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C435	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C436	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C437	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C438	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C439	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C440	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C441	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C442	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C443	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C445	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C446	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C447	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C448	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C449	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C450	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C451	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C452	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C453	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C454	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C455	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C456	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C457	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C458	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C459	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C460	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C462	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C485	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C486	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C487	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C488	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C489	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C490	1-163-131-00	CERAMIC CHIP 390PF	5%	50V

CONNECTOR

CN201	*1-506-470-11	PIN, CONNECTOR 5P
CN202	*1-506-473-11	PIN, CONNECTOR 8P
CN203	*1-506-471-11	PIN, CONNECTOR 6P
CN204	*1-506-473-11	PIN, CONNECTOR 8P
CN205	*1-506-471-11	PIN, CONNECTOR 6P
CN301	*1-506-467-11	PIN, CONNECTOR 2P

When indicating parts by reference number, please include the board name.

TP-47

Ref.No	Part No.	Description	Remark
CN302	*1-506-467-11	PIN, CONNECTOR 2P	
CN401	1-942-068-11	PIN, CONNECTOR 7P	
		DIODE	
D201	8-719-100-05	DIODE 1S2837	
D202	8-719-100-05	DIODE 1S2837	
D401	8-719-101-23	DIODE 1SS123	
		FILTER	
FL401	1-236-208-11	FILTER, LOW PASS	
		IC	
IC201	8-757-930-11	IC CX-7930A-T1	
IC301	8-752-031-96	IC CXA1070Q-Z	
IC302	8-752-031-96	IC CXA1070Q-Z	
IC402	8-752-031-98	IC CXA1121Q-Z	
IC403	8-759-946-01	IC MB88341PFV-T3	
		COIL	
L201	1-412-062-11	INDUCTOR CHIP 47UH	
L202	1-412-054-21	INDUCTOR CHIP 2.2UH	
L203	1-421-904-21	COIL, CHOKE 47UH	
L204	1-412-064-11	INDUCTOR CHIP 100UH	
L205	1-412-062-11	INDUCTOR CHIP 47UH	
L206	1-412-054-21	INDUCTOR CHIP 2.2UH	
L301	1-421-904-21	COIL, CHOKE 47UH	
L302	1-421-904-21	COIL, CHOKE 47UH	
L403	1-412-058-11	INDUCTOR CHIP 10UH	
		TRANSISTOR	
Q201	8-729-104-26	TRANSISTOR 2SB804-AW	
Q202	8-729-103-72	TRANSISTOR 2SD1005	
Q203	8-729-100-75	TRANSISTOR 2SA812-M5	
Q206	8-729-100-66	TRANSISTOR 2SC1623	
Q301	8-729-100-66	TRANSISTOR 2SC1623	
Q302	8-729-100-75	TRANSISTOR 2SA812-M5	
Q303	8-729-100-75	TRANSISTOR 2SA812-M5	
Q304	8-729-100-66	TRANSISTOR 2SC1623	
Q305	8-729-100-66	TRANSISTOR 2SC1623	
Q306	8-729-100-75	TRANSISTOR 2SA812-M5	
Q401	8-729-100-66	TRANSISTOR 2SC1623	
Q402	8-729-100-66	TRANSISTOR 2SC1623	
Q403	8-729-100-66	TRANSISTOR 2SC1623	
Q431	8-729-100-66	TRANSISTOR 2SC1623	
Q432	8-729-100-66	TRANSISTOR 2SC1623	
Q433	8-729-100-75	TRANSISTOR 2SA812-M5	
Q434	8-729-100-75	TRANSISTOR 2SA812-M5	
		RESISTOR	
R201	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R202	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R203	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R204	1-216-154-00	METAL GLAZE 15 5% 1/8W	
R205	1-216-154-00	METAL GLAZE 15 5% 1/8W	
R207	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R208	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R209	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R212	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R213	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R214	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R215	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R217	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R218	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R220	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R244	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R300	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R301	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R303	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R305	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R308	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R309	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R310	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R312	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R313	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R314	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R315	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R316	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R317	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R318	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R321	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R322	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R324	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R325	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R326	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R327	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R328	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R329	1-216-109-00	METAL GLAZE 330K 5% 1/10W	
R330	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R331	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R332	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R333	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R334	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R335	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R336	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R341	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R343	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R344	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R346	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R347	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R348	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R349	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R350	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R352	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R353	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R401	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R402	1-216-748-11	METAL GLAZE 39K 5% 1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R404	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R405	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R406	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R407	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R408	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R409	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R410	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R411	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R412	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R414	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R430	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R431	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R432	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R433	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R434	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R436	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R437	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R438	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R439	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R440	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R442	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R443	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R444	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R445	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R446	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
		FLAT CABLE				
W401	1-559-927-51	CABLE, FLAT (1.00MM PITCH) 36P				
		CRYSTAL				
X201	1-567-898-11	OSCILLATOR, CRYSTAL (28.6363MHz)				

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*A-7051-179-A EM-3 BOARD, COMPLETE (Ref. No. 1000 ********** series)

CAPACITOR

C101	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C102	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C103	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C104	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C105	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C106	1-126-202-21	ELECT (CHIP) 22MF	20%	35V
C108	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C109	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C501	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C502	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C503	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C504	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C505	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C506	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C507	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C508	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C509	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C510	1-162-638-11	CERAMIC CHIP 1MF		16V
C511	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C514	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C515	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C516	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C517	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C518	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C519	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C520	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C521	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C522	1-126-246-11	ELECT (CHIP) 220MF	20%	4V
C523	1-135-154-21	TANTAL. CHIP 3.3MF	20%	20V
C524	1-162-638-11	CERAMIC CHIP 1MF		16V
C525	1-124-443-00	ELECT 100MF	20%	6.3V
C531	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C532	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C533	1-162-638-11	CERAMIC CHIP 1MF		16V
C534	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C535	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C536	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C539	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C540	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C542	1-163-081-00	CERAMIC CHIP 0.22MF		25V
C551	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C552	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C553	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C554	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C555	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C556	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C557	1-135-147-21	TANTAL. CHIP 1MF	20%	20V
C558	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C559	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C560	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C561	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C562	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C563	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C564	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C565	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C566	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C567	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C569	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C570	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C571	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C572	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C573	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C574	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V
C575	1-124-778-00	ELECT (CHIP) 22MF	20%	6.3V
C576	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C577	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C579	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C580	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V

When indicating parts by reference number, please include the board name.

EM-3

Ref.No	Part No.	Description		Remark
C581	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V
C582	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C583	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C584	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C601	1-135-155-21	TANTAL. CHIP 4.7MF	20%	16V
C603	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C604	1-126-204-11	ELECT (CHIP) 47MF	20%	16V
C605	1-126-204-11	ELECT (CHIP) 47MF	20%	16V
C606	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C607	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C608	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C613	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C614	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C615	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C616	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C637	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C638	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C640	1-163-098-00	CERAMIC CHIP 16PF	5%	50V
C641	1-163-098-00	CERAMIC CHIP 16PF	5%	50V
C651	1-163-077-00	CERAMIC CHIP 0.1MF		50V
		CONNECTOR		
CN502	*1-506-469-11	PIN, CONNECTOR 4P		
CN503	*1-506-484-11	PIN, CONNECTOR 5P		
CN504	*1-506-474-11	PIN, CONNECTOR 9P		
CN505	*1-506-471-11	PIN, CONNECTOR 6P		
CN506	*1-506-482-11	PIN, CONNECTOR 3P		
CN507	*1-506-481-11	PIN, CONNECTOR 2P		
CN508	*1-506-482-11	PIN, CONNECTOR 3P		
		DIODE		
D101	8-719-100-03	DIODE 1S2835		
D102	8-719-105-99	DIODE RD6.2M-B1		
D103	8-719-106-43	DIODE RD9.1M-B1		
D105	8-719-106-71	DIODE RD12M-B2		
D106	8-719-106-71	DIODE RD12M-B2		
D107	8-719-106-71	DIODE RD12M-B2		
D108	8-719-107-43	DIODE RD24M-B2		
D109	8-719-100-03	DIODE 1S2835		
D110	8-719-100-03	DIODE 1S2835		
D601	8-719-100-03	DIODE 1S2835		
D602	8-719-106-43	DIODE RD9.1M-B1		
D651	8-719-100-03	DIODE 1S2835		
		FUSE		
F101⚠	1-532-772-21	FUSE, MICRO (SECONDARY) (400mA)		
		FILTER		
FL501	1-236-207-11	FILTER, LOW PASS		
FL502	1-415-588-11	DELAY LINE, L.C		
FL503	1-236-206-11	FILTER, BAND PASS		

Ref.No	Part No.	Description	Remark
		IC	
IC101	8-759-100-94	IC UPC358G2	
IC501	8-752-031-91	IC CXA1072Q-Z	
IC502	8-752-009-51	IC CX20095A	
IC503	8-752-324-54	IC CXL1504M	
IC504	8-752-034-82	IC CXA1270N-T3	
IC505	8-759-946-01	IC MB88341PFV-T3	
IC506	8-759-100-94	IC UPC358G2	
IC601	8-759-972-46	IC MB89797	
IC602	8-759-972-25	IC MSM16911MS-K	
IC603	8-759-946-03	IC S-8054ALR-LN	
L502	1-421-904-21	COIL, CHOKE 47UH	
L503	1-412-062-11	INDUCTOR CHIP 47UH	
L504	1-412-058-11	INDUCTOR CHIP 10UH	
L505	1-412-064-11	INDUCTOR CHIP 100UH	
L601	1-421-902-11	COIL, CHOKE 120UH	
L602	1-421-902-11	COIL, CHOKE 120UH	
		TRANSISTOR	
Q101	8-729-902-99	TRANSISTOR DTC114TK	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q103	8-729-100-75	TRANSISTOR 2SA812-M5	
Q501	8-729-100-75	TRANSISTOR 2SA812-M5	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-100-66	TRANSISTOR 2SC1623	
Q550	8-729-100-75	TRANSISTOR 2SA812-M5	
Q551	8-729-100-66	TRANSISTOR 2SC1623	
Q552	8-729-100-66	TRANSISTOR 2SC1623	
Q553	8-729-100-75	TRANSISTOR 2SA812-M5	
Q601	8-729-901-01	TRANSISTOR DTC144EK	
Q602	8-729-901-01	TRANSISTOR DTC144EK	
Q651	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R101	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R104	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R105	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R106	1-216-080-00	METAL GLAZE 20K 5% 1/10W	
R107	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R108	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R109	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R110	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R111	1-216-045-00	METAL GLAZE 680 5% 1/10W	
R113	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R114	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R115	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R116	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R117	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R120	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R121	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R122	1-216-087-00	METAL GLAZE 39K 5% 1/10W	
R123	1-216-077-00	METAL GLAZE 15K 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R124	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R501	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R504	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R505	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R506	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R507	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R508	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R509	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R510	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R511	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R512	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R513	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R516	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R517	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R520	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R523	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R524	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R525	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R531	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R532	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R533	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R536	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R537	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R538	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R539	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R540	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R541	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R542	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R551	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R552	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R553	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R554	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R555	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R559	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R560	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R561	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R562	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R563	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R564	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R565	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R601	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R602	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R603	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R605	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R606	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R607	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R608	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R609	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R610	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R612	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R615	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R619	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R620	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R621	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R622	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R623	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R624	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R625	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R626	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R627	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R628	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R629	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R630	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R631	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R632	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R651	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R658	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R660	1-216-295-00	METAL GLAZE	0	5%	1/10W	
		CRYSTAL				
X601	1-527-997-21	VIBRATOR, CRYSTAL (32KHz)				
X602	1-577-133-11	VIBRATOR, CRYSTAL (8KHz)				
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	*A-7051-316-A	MR-18 BOARD, COMPLETE (Ref. No. 2000 ********** series)				
		CAPACITOR				
C652	1-163-038-00	CERAMIC CHIP 0.1MF				25V
C653	1-163-038-00	CERAMIC CHIP 0.1MF				25V
C654	1-162-638-11	CERAMIC CHIP 1MF				16V
		CONNECTOR				
CN651	*1-506-483-21	PIN, CONNECTOR 4P				
		DIODE				
D652	8-719-100-03	DIODE 1S2835				
D653	8-719-105-73	DIODE RD4.7M-B2				
D654	8-719-100-03	DIODE 1S2835				
		IC				
IC651	8-759-946-03	IC S-8054ALR-LN				
IC652	8-759-200-90	IC TC4538BF				
		TRANSISTOR				
Q652	8-729-100-66	TRANSISTOR 2SC1623				
		RESISTOR				
R650	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R652	1-216-336-11	METAL GLAZE	47K	1%	1/10W	
R653	1-216-091-00	METAL GLAZE	56K	1%	1/10W	
R654	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R655	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R656	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R657	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	

When indicating parts by reference number, please include the board name.

GM-4 IM-4Y IM-4C

Ref.No	Part No.	Description			Remark
	*A-7061-187-A	GM-4 BOARD, COMPLETE (Ref. No. 1000 ********** series)			
		CAPACITOR			
C701	1-135-162-91	TANTAL. CHIP 33MF	20%	6.3V	
C702	1-163-077-00	CERAMIC CHIP 0.1MF		50V	
C703	1-162-638-11	CERAMIC CHIP 1MF		16V	
C704	1-162-638-11	CERAMIC CHIP 1MF		16V	
C705	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V	
C706	1-135-162-91	TANTAL. CHIP 33MF	20%	6.3V	
C707	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C709	1-163-077-00	CERAMIC CHIP 0.1MF		50V	
C710	1-163-077-00	CERAMIC CHIP 0.1MF		50V	
C711	1-163-125-00	CERAMIC CHIP 220PF	5%	50V	
C712	1-163-077-00	CERAMIC CHIP 0.1MF		50V	
		IC			
IC701	8-752-005-71	IC CX20057-T1			
		TRANSISTOR			
Q704	8-729-100-66	TRANSISTOR 2SC1623			
Q705	8-729-100-66	TRANSISTOR 2SC1623			
		RESISTOR			
R709	1-216-295-00	METAL GLAZE	0	5% 1/10W	
R712	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R713	1-216-079-00	METAL GLAZE	18K	5% 1/10W	
R714	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R715	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R716	1-216-748-11	METAL GLAZE	39K	5% 1/10W	
R719	1-216-748-11	METAL GLAZE	39K	5% 1/10W	
R720	1-216-089-00	METAL GLAZE	47K	5% 1/10W	
R801	1-216-296-00	METAL GLAZE	0	5% 1/8W	
R802	1-216-296-00	METAL GLAZE	0	5% 1/8W	
R803	1-216-296-00	METAL GLAZE	0	5% 1/8W	
R804	1-216-296-00	METAL GLAZE	0	5% 1/8W	

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	*A-7070-685-A	IM-4Y BOARD, COMPLETE (Ref. No. 1000 ********** series)			
		CAPACITOR			
C001	1-135-153-91	TANTAL. CHIP 2.2MF	20%	25V	
C002	1-135-160-91	TANTAL. CHIP 15MF	20%	16V	
C003	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C004	1-135-160-91	TANTAL. CHIP 15MF	20%	16V	
C005	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C006	1-135-162-91	TANTAL. CHIP 33MF	20%	6.3V	
C007	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V	
C008	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V	
C009	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C010	1-135-160-91	TANTAL. CHIP 15MF	20%	16V	
		CONNECTOR			
CN001	*1-506-487-11	PIN, CONNECTOR 8P			
CN002	*1-506-485-11	PIN, CONNECTOR 6P			
CN003	*1-506-481-11	PIN, CONNECTOR 2P			
		DIODE			
D001	8-719-100-05	DIODE 1S2837			
		TRANSISTOR			
Q001	8-729-105-53	TRANSISTOR 2SK300			
		RESISTOR			
R001	1-216-039-00	METAL GLAZE	390	5% 1/10W	
R002	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R003	1-216-061-00	METAL GLAZE	3.3K	5% 1/10W	
R004	1-216-296-00	METAL GLAZE	0	5% 1/8W	
R005	1-216-296-00	METAL GLAZE	0	5% 1/8W	
R007	1-216-099-00	METAL GLAZE	120K	5% 1/10W	
R008	1-216-079-00	METAL GLAZE	18K	5% 1/10W	
R009	1-216-071-00	METAL GLAZE	8.2K	5% 1/10W	

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	*A-7070-686-A	IM-4C BOARD, COMPLETE (Ref. No. 1000 ********** series)			
		CAPACITOR			
C051	1-135-153-91	TANTAL. CHIP 2.2MF	20%	25V	
C052	1-135-160-91	TANTAL. CHIP 15MF	20%	16V	
C053	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C054	1-135-160-91	TANTAL. CHIP 15MF	20%	16V	
C055	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C056	1-135-162-91	TANTAL. CHIP 33MF	20%	6.3V	
C057	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V	
C058	1-135-150-21	TANTAL. CHIP 3.3MF	20%	6.3V	
C059	1-163-021-00	CERAMIC CHIP 0.01MF	10%	50V	
C060	1-135-160-91	TANTAL. CHIP 15MF	20%	16V	
		CONNECTOR			
CN051	*1-506-473-11	PIN, CONNECTOR 8P			
CN052	*1-506-471-11	PIN, CONNECTOR 6P			
CN053	*1-506-467-11	PIN, CONNECTOR 2P			
		DIODE			
D051	8-719-100-05	DIODE 1S2837			

- When replacing the CCD imager, be sure to replace the CCD block assembly. The CCD imager alone can not be replaced.
- When the CCD block assembly has been replaced, perform the overall camera block adjustment.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
		TRANSISTOR				
Q051	8-729-105-53	TRANSISTOR 2SK300				
		RESISTOR				
R051	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R052	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R053	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R054	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R055	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R057	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R058	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R059	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
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	*A-7070-687-A	SW-84 BOARD, COMPLETE (Ref. No. 3000 ********** series)				
		RESISTOR				
R921	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R922	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R923	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R924	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R925	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R926	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R927	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
		SWITCH				
S921	1-554-174-00	SWITCH, KEY BOARD (EDIT SERCH +)				
S922	1-554-174-00	SWITCH, KEY BOARD (EDIT SERCH -)				
S923	1-554-174-00	SWITCH, KEY BOARD (VF DISP CHG)				
S924	1-554-174-00	SWITCH, KEY BOARD (REC REVIEW)				
S925	1-571-361-11	SWITCH, ROTARY (SHUTTER)				
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	*A-7070-688-A	SW-85 BOARD, COMPLETE (Ref. No. 3000 ********** series)				
		RESISTOR				
R911	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R912	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
		SWITCH				
S911	1-554-174-00	SWITCH, KEY BOARD (VIR)				
S912	1-570-855-11	SWITCH, SLIDE (GAIN)				
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	*A-7070-689-A	SW-86 BOARD, COMPLETE (Ref. No. 3000 ********** series)				
		CONNECTOR				
CN903	*1-506-472-11	PIN, CONNECTOR 7P				

Ref.No	Part No.	Description				Remark
		DIODE				
D901	8-719-105-73	DIODE RD4.7M-B2				
		RESISTOR				
R901	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R902	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R903	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R904	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R905	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R906	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R907	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R908	1-216-295-00	METAL GLAZE	0	5%	1/10W	
		SWITCH				
S901	1-570-855-11	SWITCH, SLIDE (WHITE BALANCE 5600K/3200K/AUTO)				
S902	1-554-174-00	SWITCH, KEY BOARD (SET)				
S904	1-570-837-11	SWITCH, SLIDE (VTR STBY/SAVE, CAMERA ON/OFF)				
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	*A-6711-967-A	VF-17 BOARD, COMPLETE (Ref. No. 4000 ********** series)				
		SOCKET				
A101	1-526-540-00	SOCKET, PICTURE TUBE				
		CAPACITOR				
C101	1-163-021-00	CERAMIC CHIP	0.01MF		50V	
C102	1-124-443-00	ELECT	100MF	20%	10V	
C103	1-124-443-00	ELECT	100MF	20%	10V	
C104	1-126-154-11	ELECT	47MF	20%	6.3V	
C105	1-123-611-00	ELECT	1MF	20%	50V	
C106	1-126-157-11	ELECT	10MF	20%	16V	
C107	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C108	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	
C109	1-163-097-00	CERAMIC CHIP	15PF	5%	50V	
C110	1-124-927-11	ELECT	4.7MF	20%	100V	
C111	1-131-381-00	TANTALUM	47MF	10%	10V	
C112	1-131-365-00	TANTALUM	10MF	10%	16V	
C113⚠	1-106-351-00	MYLAR	0.0022MF	10%	100V	
C114⚠	1-106-343-00	MYLAR	0.001MF	10%	100V	
C115	1-162-978-11	CERAMIC	0.01MF		2KV	
C116	1-162-978-11	CERAMIC	0.01MF		2KV	
C117	1-136-195-11	FILM	0.022MF	5%	400V	
C118	1-106-379-12	MYLAR	0.033MF	10%	200V	
C119	1-124-282-00	ELECT	22MF	20%	25V	
C120⚠	1-106-343-00	MYLAR	0.001MF	10%	100V	
C121	1-131-381-00	TANTALUM	47MF	10%	10V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

VF-17 VF-18

Ref.No	Part No.	Description	Remark
		CONNECTOR	
CN101	*1-506-473-11	PIN, CONNECTOR 8P	
CN102	*1-506-470-11	PIN, CONNECTOR 5P	
CN103	*1-506-468-11	PIN, CONNECTOR 3P	
CN104	*1-506-470-11	PIN, CONNECTOR 5P	
CN105	*1-506-467-11	PIN, CONNECTOR 2P	
CN106	*1-506-467-11	PIN, CONNECTOR 2P	
CN107	1-564-947-11	PIN, CONNECTOR 2P	
		DIODE	
D101	8-719-109-93	DIODE RD6.2ES-B2	
D102⚠	8-719-109-93	DIODE RD6.2ES-B2	
D103	8-719-100-05	DIODE 1S2837	
D104	8-719-106-15	DIODE RD6.2M-B3	
D105	8-719-300-80	DIODE RU-1C	
D108	8-719-100-03	DIODE 1S2835	
D109⚠	8-719-300-76	DIODE RH-1	
		HIGH-VOLTAGE	
HT101⚠	1-453-097-11	HIGH-VOLTAGE BLOCK	
		IC	
IC101	8-759-145-58	IC UPC4558C	
		COIL	
L101	1-408-982-11	INDUCTOR 100UH	
L102	1-408-978-21	INDUCTOR 47UH	
L103	1-408-981-21	INDUCTOR 82UH	
L104	1-408-982-11	INDUCTOR 100UH	
		VARIABLE COIL	
LV101⚠	1-459-203-00	COIL	
		TRANSISTOR	
Q101	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q102	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q103	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q104	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q105	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q106	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q107	8-729-100-61	TRANSISTOR 2SC1623-L7	
Q108⚠	8-729-301-87	TRANSISTOR 2SD1083L	
Q110	8-729-175-72	TRANSISTOR 2SC2757-T33	
Q111	8-729-900-59	TRANSISTOR DTC114EK	
Q112	8-729-202-15	TRANSISTOR 2SC2713	
		RESISTOR	
R101	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R102	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R103⚠	1-215-440-00	METAL 6.2K 1% 1/6W	
R104⚠	1-215-430-00	METAL 2.4K 1% 1/6W	
R105	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R106	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R107	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R108	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R109	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R110	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R111	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R112	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R113	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R114	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R115	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R116	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R117	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R118	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R119	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R120	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R121	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R122	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R123	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R124	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R125	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R126	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R127	1-216-023-00	METAL GLAZE 82 5% 1/10W	
R128	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R129	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R130	1-216-009-00	METAL GLAZE 22 5% 1/10W	
R131	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R133	1-214-960-00	METAL 680K 1% 1/4W	
R134	1-215-474-00	METAL 160K 1% 1/6W	
R135	1-216-023-00	METAL GLAZE 82 5% 1/10W	
R136	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R137	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R138	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R139	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R140	1-214-964-00	METAL 1M 1% 1/4W	
R141	1-214-964-00	METAL 1M 1% 1/4W	
R142	1-216-023-00	METAL GLAZE 82 5% 1/10W	
R143	1-216-023-00	METAL GLAZE 82 5% 1/10W	
R144	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
		VARIABLE RESISTOR	
RV101⚠	1-230-520-11	RES, ADJ, METAL GLAZE 1K	
RV102	1-228-452-00	RES, ADJ, CERMET 50	
RV103	1-237-525-21	RES, ADJ, METAL FILM 2M	
RV104	1-230-529-11	RES, ADJ, METAL GLAZE 470K	

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*A-6711-968-A VF-18 BOARD, COMPLETE (Ref. No. 4000 ********** series)

		CAPACITOR	
C201	1-126-157-11	ELECT 10MF 20% 16V	
C203	1-131-587-11	TANTALUM 0.68MF 10% 35V	

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Replace only with part number specified.

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
C204	1-124-464-11	ELECT	0.22MF	20%	50V	
C205	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C206	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C207	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C208	1-163-035-00	CERAMIC CHIP	0.047MF		50V	
C209	1-131-374-00	TANTALUM	33MF	10%	16V	
C210	1-131-347-00	TANTALUM	1MF	10%	35V	
C211	1-124-141-00	ELECT	330MF	20%	10V	
C212	1-130-481-00	MYLAR	0.0068MF	5%	50V	
C213	1-123-611-00	ELECT	1MF	20%	50V	
C214	1-130-487-00	MYLAR	0.022MF	5%	50V	
C215	1-126-157-11	ELECT	10MF	20%	16V	
C216	1-124-140-00	ELECT	220MF	20%	10V	
C217	1-163-021-00	CERAMIC CHIP	0.01MF		50V	
C218	1-126-157-11	ELECT	10MF	20%	16V	
C219	1-124-254-00	ELECT	0.68MF	20%	50V	
C220	1-123-661-00	ELECT	100MF	20%	6.3V	
C221	1-124-135-00	ELECT	470MF	20%	6.3V	
C222	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C223	1-163-145-00	CERAMIC CHIP	0.0015MF	10%	50V	

CONNECTOR

CN201	*1-506-471-11	PIN, CONNECTOR 6P
CN202	*1-506-467-11	PIN, CONNECTOR 2P

DIODE

D201	9-998-554-01	DIODE MA153

IC

IC201 ⚠	8-759-300-28	IC HA11423MP

TRANSISTOR

Q201	8-729-100-67	TRANSISTOR 2SC1623-L7
Q202	8-729-100-67	TRANSISTOR 2SC1623-L7
Q203	8-729-100-76	TRANSISTOR 2SA812-M6

RESISTOR

R201 ⚠	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R202 ⚠	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R203	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R204	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R205	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R206	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R207	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R208	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R209	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R210	1-216-027-00	METAL GLAZE	120	5%	1/10W
R211	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R212	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R213	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R214	1-216-025-00	METAL GLAZE	100	5%	1/10W
R215	1-216-025-00	METAL GLAZE	100	5%	1/10W
R216	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R217	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R218	1-216-001-00	METAL GLAZE	10	5%	1/10W
R219	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R220	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R221	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R222	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R223	1-215-377-00	METAL	15	1%	1/6W
R224	1-215-377-00	METAL	15	1%	1/6W
R225	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R226	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R227	1-249-385-11	CARBON	2.2	5%	1/4W
R228	1-249-385-11	CARBON	2.2	5%	1/4W

VARIABLE RESISTOR

RV201	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K
RV202	1-230-520-11	RES, ADJ, METAL GLAZE 1K
RV203	1-230-519-11	RES, ADJ, METAL GLAZE 470
RV204	1-230-522-11	RES, ADJ, METAL GLAZE 4.7K

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*1-627-580-11 SW-98 BOARD (Ref. No. 4400 series)
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VARIABLE RESISTOR

RV001	1-230-075-00	RES, VAR, CARBON 2K (BRIGHTNESS)
RV002	1-230-075-00	RES, VAR, CARBON 2K (CONTRAST)

SWITCH

S001	1-554-377-00	SWITCH, SLIDE (TALLY ON/OFF)

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*1-627-581-11 LW-2 BOARD (Ref. No. 4500 series)
****

DIODE

D009	8-719-800-25	DIODE TLR109A (WHITE BAL)

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*1-627-582-11 LW-3 BOARD (Ref. No. 4600 series)
****

DIODE

D008	8-719-800-25	DIODE TLR109A (REC)

****

*1-627-583-11 LW-4 BOARD (Ref. No. 4700 series)
****

DIODE

D011	8-719-800-12	DIODE TL0102A (GAIN UP)

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LW-5 LW-6 VR-19

Ref.No	Part No.	Description		Remark
	*1-627-584-11	LW-5 BOARD (Ref. No. 4800 series) **********		
		DIODE		
D010	8-719-800-25	DIODE TLR109A (LOW RIGHT)		
**********				
	*1-627-585-11	LW-6 BOARD (Ref. No. 4900 series) **********		
		DIODE		
D006	8-719-905-56	DIODE EBR5504S (TALLY)		
**********				
	*A-6711-966-A	VR-19 BOARD, COMPLETE (Ref. No. 5000 series) **********		
		CAPACITOR		
C001	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C002	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C003	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C004	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C005	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C007	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C008	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C009	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C010	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C011	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C012	1-126-204-11	ELECT 47MF	20%	16V
C013	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C014	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C015	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C016	1-126-204-11	ELECT 47MF	20%	16V
C017	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C018	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C019	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C020	1-126-204-11	ELECT 47MF	20%	16V
C021	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C022	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C023	1-126-204-11	ELECT 47MF	20%	16V
C024	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C025	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C026	1-126-204-11	ELECT 47MF	20%	16V
C027	1-124-778-00	ELECT 22MF	20%	6.3V
C028	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C029	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C030	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C031	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C032	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C033	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C034	1-163-099-00	CERAMIC CHIP 18PF	5%	50V
C035	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C036	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C037	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C038	1-136-017-00	CERAMIC CHIP 0.0047MF		50V
C039	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C040	1-136-017-00	CERAMIC CHIP 0.0047MF		50V
C041	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C042	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C043	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C044	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C045	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C046	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C047	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C048	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C049	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C050	1-126-204-11	ELECT 47MF	20%	16V
C055	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C056	1-126-191-11	ELECT 0.47MF	20%	50V
C057	1-126-198-11	ELECT 4.7MF	20%	35V
C058	1-126-204-11	ELECT 47MF	20%	16V
C059	1-126-204-11	ELECT 47MF	20%	16V
C060	1-126-191-11	ELECT 0.47MF	20%	50V
C061	1-126-198-11	ELECT 4.7MF	20%	35V
C062	1-126-198-11	ELECT 4.7MF	20%	35V
C063	1-163-096-00	CERAMIC CHIP 13PF	5%	50V
C064	1-163-096-00	CERAMIC CHIP 13PF	5%	50V
C065	1-126-204-11	ELECT 47MF	20%	16V
C066	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C067	1-126-204-11	ELECT 47MF	20%	16V
C068	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C069	1-136-017-00	CERAMIC CHIP 0.0047MF		50V
C070	1-136-017-00	CERAMIC CHIP 0.0047MF		50V
C071	1-126-204-11	ELECT 47MF	20%	16V
C072	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C073	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C074	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C076	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C077	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C078	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C079	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C081	1-124-779-00	ELECT 10MF	20%	16V
C082	1-124-779-00	ELECT 10MF	20%	16V
C107	1-126-157-11	ELECT 10MF	20%	10V
C110	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C113	1-124-589-11	ELECT 47MF	20%	10V
C114	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C117	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C118	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C119	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C120	1-163-141-00	CERAMIC CHIP 0.001MF	10%	50V
C121	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C122	1-163-137-00	CERAMIC CHIP 680PF	10%	50V
C123	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C124	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C126	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C127	1-124-234-00	ELECT 22MF	20%	10V
C128	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C129	1-124-589-11	ELECT 47MF	20%	10V
C130	1-124-234-00	ELECT 22MF	20%	10V
C131	1-124-255-00	ELECT 1MF	20%	50V
C132	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C133	1-126-157-11	ELECT 10MF	20%	10V
C134	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C135	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C136	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C137	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C138	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C139	1-124-589-11	ELECT 47MF	20%	10V
C140	1-163-021-00	CERAMIC CHIP 0.01MF		50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C141	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	
C142	1-163-131-00	CERAMIC CHIP 390PF	5%	50V	
C145	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V	
C146	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C150	1-124-589-11	ELECT 47MF	20%	10V	
C151	1-163-099-00	CERAMIC CHIP 18PF	5%	50V	
C153	1-163-099-00	CERAMIC CHIP 18PF	5%	50V	
C154	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	
C157	1-124-589-11	ELECT 47MF	20%	10V	
C158	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	
C159	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	
C160	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C190	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C194	1-124-589-11	ELECT 47MF	20%	10V	
C200	1-135-097-21	TANTAL. CHIP 15MF	20%	10V	
C201	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C203	1-164-188-91	CERAMIC CHIP 470PF	2%	50V	
C204	1-164-187-11	CERAMIC CHIP 390PF	2%	50V	
C206	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	
C207	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	
C208	1-164-186-11	CERAMIC CHIP 270PF	2%	50V	
C209	1-135-078-21	TANTAL. CHIP 2.2MF	20%	25V	
C210	1-135-078-21	TANTAL. CHIP 2.2MF	20%	25V	
C211	1-135-078-21	TANTAL. CHIP 2.2MF	20%	25V	
C212	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	
C214	1-135-097-21	TANTAL. CHIP 15MF	20%	10V	
C301	1-124-234-00	ELECT 22MF	20%	10V	
C302	1-124-234-00	ELECT 22MF	20%	10V	
C303	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C304	1-124-589-11	ELECT 47MF	20%	10V	
C305	1-124-589-11	ELECT 47MF	20%	10V	
C306	1-126-094-11	ELECT 4.7MF	20%	16V	
C307	1-124-234-00	ELECT 22MF	20%	10V	
C310	1-124-589-11	ELECT 47MF	20%	10V	
C311	1-163-099-00	CERAMIC CHIP 18PF	5%	50V	
C312	1-124-589-11	ELECT 47MF	20%	10V	
C313	1-126-157-11	ELECT 10MF	20%	10V	
C350	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C351	1-135-078-21	TANTAL. CHIP 2.2MF	20%	25V	
C352	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C353	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	
C354	1-135-166-21	TANTAL. CHIP 47MF	20%	6.3V	
C355	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C356	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C357	1-135-129-21	TANTAL. CHIP 68MF	20%	4V	
C360	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	
C361	1-135-125-21	TANTAL. CHIP 33MF	20%	10V	
C362	1-135-159-21	TANTAL. CHIP 10MF	20%	10V	
C363	1-135-125-21	TANTAL. CHIP 33MF	20%	10V	
C402	1-124-255-00	ELECT 1MF	20%	50V	
C403	1-124-589-11	ELECT 47MF	20%	10V	
C404	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C405	1-126-094-11	ELECT 4.7MF	20%	16V	
C407	1-124-255-00	ELECT 1MF	20%	50V	
C408	1-163-986-00	CERAMIC CHIP 0.027MF	10%	25V	
C409	1-124-589-11	ELECT 47MF	20%	10V	
C410	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C411	1-163-145-00	CERAMIC CHIP 0.0015MF	10%	50V	
C412	1-163-108-00	CERAMIC CHIP 43PF	5%	50V	
C413	1-163-145-00	CERAMIC CHIP 0.0015MF	10%	50V	
C414	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V	
C415	1-124-255-00	ELECT 1MF	20%	50V	
C416	1-124-255-00	ELECT 1MF	20%	50V	
C417	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C418	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C419	1-163-123-00	CERAMIC CHIP 180PF	5%	50V	
C420	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C421	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C422	1-126-157-11	ELECT 10MF	20%	10V	
C423	1-126-157-11	ELECT 10MF	20%	10V	
C424	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V	
C425	1-124-255-00	ELECT 1MF	20%	50V	
C426	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	
C427	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	
C428	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C429	1-163-115-00	CERAMIC CHIP 82PF	5%	50V	
C430	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C431	1-126-094-11	ELECT 4.7MF	20%	16V	
C432	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C433	1-124-234-00	ELECT 22MF	20%	10V	
C434	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C435	1-124-589-11	ELECT 47MF	20%	10V	
C436	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C441	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C442	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	
C443	1-163-119-00	CERAMIC CHIP 120PF	5%	50V	
C444	1-163-119-00	CERAMIC CHIP 120PF	5%	50V	
C445	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C450	1-163-103-00	CERAMIC CHIP 27PF	5%	50V	
C451	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C452	1-163-021-00	CERAMIC CHIP 0.01MF		50V	
C453	1-163-105-00	CERAMIC CHIP 33PF	5%	50V	
C454	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V	
C455	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	
C456	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	
C457	1-124-257-00	ELECT 2.2MF	20%	50V	
C500	1-124-140-00	ELECT 220MF	20%	10V	
C501	1-124-140-00	ELECT 220MF	20%	10V	
C502	1-126-204-11	ELECT 47MF	20%	16V	
C503	1-126-204-11	ELECT 47MF	20%	16V	
C504	1-126-204-11	ELECT 47MF	20%	16V	
C505	1-163-105-00	CERAMIC CHIP 33PF	5%	50V	
C506	1-163-099-00	CERAMIC CHIP 18PF	5%	50V	
C507	1-163-115-00	CERAMIC CHIP 82PF	5%	50V	
C508	1-163-099-00	CERAMIC CHIP 18PF	5%	50V	
C509	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description			Remark
C510	1-126-204-11	ELECT	47MF	20%	16V
C511	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C512	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C513	1-126-204-11	ELECT	47MF	20%	16V
C514	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C515	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C516	1-126-204-11	ELECT	47MF	20%	16V
C517	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C518	1-126-204-11	ELECT	47MF	20%	16V
C519	1-126-204-11	ELECT	47MF	20%	16V
C520	1-164-188-91	CERAMIC CHIP	470PF	2%	50V
C521	1-164-187-11	CERAMIC CHIP	390PF	2%	50V
C523	1-164-186-11	CERAMIC CHIP	270PF	2%	50V
C525	1-124-290-00	ELECT	47MF	20%	10V
C526	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C527	1-163-091-00	CERAMIC CHIP	8PF	0.25PF	50V
C528	1-126-204-11	ELECT	47MF	20%	16V
C530	1-126-193-11	ELECT	1MF	20%	50V
C532	1-130-479-00	MYLAR	0.0047MF	5%	50V
C533	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C534	1-126-193-11	ELECT	1MF	20%	50V
C535	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C536	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C537	1-126-198-11	ELECT	4.7MF	20%	35V
C538	1-126-206-11	ELECT	100MF	20%	6.3V
C539	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C540	1-126-204-11	ELECT	47MF	20%	16V
C550	1-126-204-11	ELECT	47MF	20%	16V
C551	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C552	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C601	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C602	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C603	1-124-589-11	ELECT	47MF	20%	10V
C606	1-126-157-11	ELECT	10MF	20%	10V
C607	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C608	1-124-589-11	ELECT	47MF	20%	10V
C610	1-126-157-11	ELECT	10MF	20%	10V
C613	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C614	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C615	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C616	1-124-589-11	ELECT	47MF	20%	10V
C617	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C620	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C630	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C631	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V
C632	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C634	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C636	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C640	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C701	1-135-159-21	TANTAL. CHIP	10MF	20%	10V
C702	1-135-085-21	TANTAL. CHIP	4.7MF	20%	16V
C705	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C707	1-124-584-00	ELECT	100MF	20%	10V
C708	1-126-157-11	ELECT	10MF	20%	10V
C709	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C710	1-124-584-00	ELECT	100MF	20%	10V
C712	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C713	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C715	1-135-129-21	TANTAL. CHIP	68MF	20%	4V
C718	1-135-166-21	TANTAL. CHIP	47MF	20%	6.3V
C719	1-126-157-11	ELECT	10MF	20%	10V
C720	1-126-157-11	ELECT	10MF	20%	10V
C721	1-124-234-00	ELECT	22MF	20%	10V
C722	1-135-129-21	TANTAL. CHIP	68MF	20%	4V
C723	1-135-125-21	TANTAL. CHIP	33MF	20%	10V
C724	1-135-125-21	TANTAL. CHIP	33MF	20%	10V
C725	1-124-589-11	ELECT	47MF	20%	10V
C726	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C727	1-124-465-00	ELECT	0.47MF	20%	50V
C729	1-135-125-21	TANTAL. CHIP	33MF	20%	10V
C730	1-126-157-11	ELECT	10MF	20%	10V
C801	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C802	1-124-589-11	ELECT	47MF	20%	10V
C803	1-126-157-11	ELECT	10MF	20%	10V
C804	1-126-157-11	ELECT	10MF	20%	10V
C805	1-124-255-00	ELECT	1MF	20%	50V
C806	1-124-234-00	ELECT	22MF	20%	10V
C807	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C808	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C809	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C811	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C813	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C814	1-126-153-11	ELECT	22MF	20%	6.3V
C815	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C816	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C817	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C818	1-126-157-11	ELECT	10MF	20%	10V
C819	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C820	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C821	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C822	1-126-154-11	ELECT	47MF	20%	6.3V
C823	1-126-157-11	ELECT	10MF	20%	10V
C824	1-126-157-11	ELECT	10MF	20%	10V
C825	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C826	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C827	1-124-589-11	ELECT	47MF	20%	10V
C828	1-126-157-11	ELECT	10MF	20%	10V
C829	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C830	1-124-465-00	ELECT	0.47MF	20%	50V
C831	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C832	1-124-584-00	ELECT	100MF	20%	10V
C833	1-126-094-11	ELECT	4.7MF	20%	16V
C834	1-126-094-11	ELECT	4.7MF	20%	16V
C835	1-124-135-00	ELECT	470MF	20%	6.3V
C836	1-124-135-00	ELECT	470MF	20%	6.3V
C837	1-126-094-11	ELECT	4.7MF	20%	16V

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Ref.No	Part No.	Description			Remark
C838	1-126-094-11	ELECT	4.7MF	20%	16V
C839	1-126-157-11	ELECT	10MF	20%	10V
C840	1-163-108-00	CERAMIC CHIP	43PF	5%	50V
C841	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C842	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C843	1-124-584-00	ELECT	100MF	20%	10V
C844	1-126-157-11	ELECT	10MF	20%	10V
C846	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C847	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C848	1-126-157-11	ELECT	10MF	20%	10V
C849	1-126-157-11	ELECT	10MF	20%	10V
C850	1-124-584-00	ELECT	100MF	20%	10V
C851	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C852	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C853	1-126-157-11	ELECT	10MF	20%	10V
C855	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C856	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C857	1-124-589-11	ELECT	47MF	20%	10V
C861	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C863	1-126-094-11	ELECT	4.7MF	20%	16V
C864	1-161-021-11	CERAMIC	0.047MF	20%	25V
C901	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C902	1-126-157-11	ELECT	10MF	20%	10V

FILTER

CF401	1-231-302-00	CERAMIC FILTER (4.27MHZ)
CF402	1-567-390-11	FILTER, CERAMIC (10.7MHz)
CF801	1-567-390-11	FILTER, CERAMIC (10.7MHz)

CONNECTOR

CN001	*1-560-894-00	PIN, CONNECTOR 6P
CN002	*1-564-003-00	PIN, CONNECTOR 4P
CN003	*1-564-008-00	PIN, CONNECTOR 9P
CN004	*1-564-003-00	PIN, CONNECTOR 4P
CN005	*1-564-008-21	PIN, CONNECTOR 9P
CN006	*1-564-006-11	PIN, CONNECTOR 7P
CN007	*1-564-005-00	PIN, CONNECTOR 6P
CN008	*1-564-005-00	PIN, CONNECTOR 6P
CN010	*1-564-029-00	PIN, CONNECTOR 4P

DIODE

D001	8-719-118-29	DIODE 1SS220
D002	8-719-118-29	DIODE 1SS220
D003	8-719-118-29	DIODE 1SS220
D004	8-719-118-29	DIODE 1SS220
D101	8-719-914-43	DIODE DAN202K
D161	8-719-801-48	DIODE 1SS193
D200	8-719-801-45	DIODE 1SS187
D201	8-719-801-45	DIODE 1SS187
D202	8-719-801-48	DIODE 1SS193
D203	8-719-914-42	DIODE DA204K
D204	8-719-801-48	DIODE 1SS193
D500	8-719-801-48	DIODE 1SS193
D501	8-719-801-45	DIODE 1SS187
D502	8-719-801-45	DIODE 1SS187
D503	8-719-801-48	DIODE 1SS193
D504	8-719-801-48	DIODE 1SS193
D505	8-719-801-45	DIODE 1SS187
D506	8-719-801-45	DIODE 1SS187
D507	8-719-801-45	DIODE 1SS187
D508	8-719-801-45	DIODE 1SS187
D509	8-719-801-45	DIODE 1SS187
D510	8-719-801-45	DIODE 1SS187
D602	8-719-801-48	DIODE 1SS193
D801	8-719-914-43	DIODE DAN202K
D802	8-719-801-48	DIODE 1SS193
D803	8-719-914-44	DIODE DAP202K
D901	8-719-914-43	DIODE DAN202K

DELAY LINE

DL101	1-415-590-11	DELAY LINE (1H) (3.58MHz)
DL301	1-415-589-11	DELAY LINE (1H) (10.7MHz)
FL101	1-415-561-11	DELAY LINE, LC
FL102	1-415-558-11	DELAY LINE, LC
FL301	1-415-560-11	DELAY LINE, LC
FL401	1-236-082-11	FILTER, BAND PASS
FL402	1-236-083-11	FILTER, BAND PASS
FL501	1-236-084-11	LPF (DEM.Y)

IC

IC001	8-752-031-07	IC CXA1091M
IC002	8-759-906-32	IC CX-893A
IC003	8-759-708-05	IC NJM78L05A
IC101	8-752-034-54	IC CXA1326Q-Z
IC301	1-808-088-11	IC YK-2
IC351	8-759-030-34	IC MC1496MR
IC401	8-759-230-48	IC TA7788AF
IC601	1-808-085-13	IC YF-2
IC602	8-759-745-64	IC NJM4560M
IC701	8-759-710-29	IC NJM2235M
IC801	8-752-322-24	IC CXL1008M
IC803	8-752-009-51	IC CX20095A
IC804	8-759-710-08	IC NJM2234M (T1)
IC805	8-759-710-08	IC NJM2234M (T1)
IC806	8-759-710-29	IC NJM2235M
IC807	8-759-710-08	IC NJM2234M (T1)
IC901	8-757-991-00	IC CX-7991

COIL

L001	1-408-772-41	INDUCTOR CHIP	3.9UH
L002	1-408-772-41	INDUCTOR CHIP	3.9UH
L003	1-410-437-11	INDUCTOR	330UH
L004	1-410-437-11	INDUCTOR	330UH
L005	1-407-169-XX	INDUCTOR	100UH
L007	1-407-169-XX	INDUCTOR	100UH
L008	1-408-970-21	INDUCTOR	10UH

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description		Remark
L009	1-408-970-21	INDUCTOR	10UH	
L011	1-407-169-XX	INDUCTOR	100UH	
L012	1-408-789-21	INDUCTOR CHIP	100UH	
L013	1-408-789-21	INDUCTOR CHIP	100UH	
L014	1-407-169-XX	INDUCTOR CHIP	22UH	
L104	1-408-966-21	INDUCTOR	4.7UH	
L105	1-407-169-XX	INDUCTOR CHIP	22UH	
L107	1-408-974-21	INDUCTOR	22UH	
L200	1-410-385-41	INDUCTOR CHIP	22UH	
L201	1-410-385-41	INDUCTOR CHIP	22UH	
L203	1-410-393-41	INDUCTOR CHIP	100UH	
L301	1-407-169-XX	INDUCTOR	100UH	
L351	1-407-169-XX	INDUCTOR	100UH	
L402	1-410-065-21	INDUCTOR	3.3MMH	
L405	1-408-985-21	INDUCTOR	180UH	
L406	1-408-986-21	INDUCTOR	270UH	
L407	1-408-985-21	INDUCTOR	180UH	
L470	1-407-169-XX	INDUCTOR	100UH	
L500	1-410-385-41	INDUCTOR CHIP	22UH	
L501	1-410-385-41	INDUCTOR CHIP	22UH	
L502	1-410-384-41	INDUCTOR CHIP	18UH	
L504	1-410-387-41	INDUCTOR CHIP	33UH	
L507	1-410-385-41	INDUCTOR CHIP	22UH	
L508	1-410-385-41	INDUCTOR CHIP	22UH	
L509	1-410-382-41	INDUCTOR CHIP	12UH	
L510	1-410-387-41	INDUCTOR CHIP	33UH	
L511	1-410-387-41	INDUCTOR CHIP	33UH	
L512	1-407-169-XX	INDUCTOR	100UH	
L513	1-410-393-41	INDUCTOR CHIP	100UH	
L604	1-407-510-00	INDUCTOR	33MMH	
L605	1-408-984-21	INDUCTOR	150UH	
L606	1-408-987-21	INDUCTOR	330UH	
L607	1-407-169-XX	INDUCTOR	100UH	
L608	1-407-169-XX	INDUCTOR	100UH	
L701	1-407-169-XX	INDUCTOR	100UH	
L703	1-407-169-XX	INDUCTOR	100UH	
L801	1-408-970-21	INDUCTOR	10UH	
L803	1-408-979-21	INDUCTOR	56UH	
L804	1-407-169-XX	INDUCTOR	100UH	
L805	1-407-169-XX	INDUCTOR	100UH	
L806	1-407-169-XX	INDUCTOR	100UH	
L807	1-407-169-XX	INDUCTOR	100UH	
L808	1-407-169-XX	INDUCTOR	100UH	
L809	1-408-978-21	INDUCTOR	47UH	
L810	1-407-169-XX	INDUCTOR	100UH	
L811	1-407-169-XX	INDUCTOR	100UH	
L812	1-407-169-XX	INDUCTOR	100UH	
L813	1-408-978-21	INDUCTOR	47UH	
L814	1-407-169-XX	INDUCTOR	100UH	
L815	1-407-169-XX	INDUCTOR	100UH	
L901	1-407-169-XX	INDUCTOR	100UH	

Ref.No	Part No.	Description	Remark
		VARIABLE COIL	
LV101	1-408-512-00	COIL (VARIABLE) (10UH)	
		TRANSISTOR	
Q001	8-729-103-72	TRANSISTOR 2SD1005	
Q002	8-729-800-43	TRANSISTOR 2SK152-3	
Q003	8-729-800-43	TRANSISTOR 2SK152-3	
Q004	8-729-103-72	TRANSISTOR 2SD1005	
Q005	8-729-904-51	TRANSISTOR DTB123EK	
Q006	8-729-901-01	TRANSISTOR DTC144EK	
Q007	8-729-100-66	TRANSISTOR 2SC1623	
Q008	8-729-100-66	TRANSISTOR 2SC1623	
Q009	8-729-901-01	TRANSISTOR DTC144EK	
Q010	8-729-100-66	TRANSISTOR 2SC1623	
Q012	8-729-600-08	TRANSISTOR 2SK381-E	
Q013	8-729-600-08	TRANSISTOR 2SK381-E	
Q015	8-729-100-66	TRANSISTOR 2SC1623	
Q016	8-729-901-00	TRANSISTOR DTC124EK	
Q017	8-729-901-00	TRANSISTOR DTC124EK	
Q018	8-729-100-66	TRANSISTOR 2SC1623	
Q019	8-729-100-66	TRANSISTOR 2SC1623	
Q020	8-729-100-66	TRANSISTOR 2SC1623	
Q101	8-729-100-75	TRANSISTOR 2SA812-M5	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q103	8-729-100-66	TRANSISTOR 2SC1623	
Q104	8-729-100-75	TRANSISTOR 2SA812-M5	
Q105	8-729-901-01	TRANSISTOR DTC144EK	
Q107	8-729-100-66	TRANSISTOR 2SC1623	
Q108	8-729-100-75	TRANSISTOR 2SA812-M5	
Q160	8-729-901-06	TRANSISTOR DTA144EK	
Q180	8-729-100-66	TRANSISTOR 2SC1623	
Q193	8-729-901-01	TRANSISTOR DTC144EK	
Q200	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q201	8-729-122-63	TRANSISTOR 2SA1226	
Q202	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q203	8-729-122-63	TRANSISTOR 2SA1226	
Q204	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q205	9-989-161-01	TRANSISTOR 2SC2412K	
Q206	8-729-122-63	TRANSISTOR 2SA1226	
Q207	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q208	8-729-122-63	TRANSISTOR 2SA1226	
Q209	8-729-901-01	TRANSISTOR DTC144EK	
Q210	8-729-122-63	TRANSISTOR 2SA1226	
Q211	8-729-100-76	TRANSISTOR 2SA812	
Q212	8-729-901-01	TRANSISTOR DTC144EK	
Q213	8-729-100-76	TRANSISTOR 2SA812	
Q214	8-729-901-01	TRANSISTOR DTC144EK	
Q301	8-729-100-66	TRANSISTOR 2SC1623	
Q302	8-729-100-66	TRANSISTOR 2SC1623	
Q351	8-729-100-66	TRANSISTOR 2SC1623	
Q352	8-729-100-66	TRANSISTOR 2SC1623	
Q353	8-729-100-66	TRANSISTOR 2SC1623	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q354	8-729-100-66	TRANSISTOR 2SC1623	
Q355	8-729-100-66	TRANSISTOR 2SC1623	
Q356	8-729-100-66	TRANSISTOR 2SC1623	
Q357	8-729-901-01	TRANSISTOR DTC144EK	
Q402	8-729-100-66	TRANSISTOR 2SC1623	
Q404	8-729-100-66	TRANSISTOR 2SC1623	
Q406	8-729-100-66	TRANSISTOR 2SC1623	
Q407	8-729-102-71	TRANSISTOR 2SA812-M5	
Q420	8-729-100-66	TRANSISTOR 2SC1623	
Q421	8-729-100-66	TRANSISTOR 2SC1623	
Q422	8-729-300-55	TRANSISTOR 2SA1122	
Q423	8-729-901-01	TRANSISTOR DTC144EK	
Q425	8-729-901-01	TRANSISTOR DTC144EK	
Q500	8-729-102-71	TRANSISTOR 2SA812-M5	
Q501	8-729-102-61	TRANSISTOR 2SC1623	
Q502	8-729-102-61	TRANSISTOR 2SC1623	
Q503	8-729-102-61	TRANSISTOR 2SC1623	
Q504	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q505	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q506	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q507	8-729-122-63	TRANSISTOR 2SA1226	
Q508	8-729-920-02	TRANSISTOR 2SC2059K-T-96-N	
Q514	8-729-122-63	TRANSISTOR 2SA1226	
Q515	9-989-161-01	TRANSISTOR 2SC2412K	
Q516	8-729-100-66	TRANSISTOR 2SC1623	
Q517	8-729-100-66	TRANSISTOR 2SC1623	
Q518	8-729-100-66	TRANSISTOR 2SC1623	
Q519	8-729-100-66	TRANSISTOR 2SC1623	
Q520	8-729-901-06	TRANSISTOR DTA144EK	
Q521	8-729-100-66	TRANSISTOR 2SC1623	
Q522	8-729-100-66	TRANSISTOR 2SC1623	
Q523	8-729-100-75	TRANSISTOR 2SA812-M5	
Q524	8-729-100-66	TRANSISTOR 2SC1623	
Q525	8-729-100-66	TRANSISTOR 2SC1623	
Q526	8-729-100-66	TRANSISTOR 2SC1623	
Q601	8-729-100-75	TRANSISTOR 2SA812-M5	
Q602	8-729-100-66	TRANSISTOR 2SC1623	
Q603	8-729-100-66	TRANSISTOR 2SC1623	
Q605	8-729-100-66	TRANSISTOR 2SC1623	
Q609	8-729-100-66	TRANSISTOR 2SC1623	
Q610	8-729-100-66	TRANSISTOR 2SC1623	
Q611	8-729-901-01	TRANSISTOR DTC144EK	
Q701	8-729-100-66	TRANSISTOR 2SC1623	
Q702	8-729-100-66	TRANSISTOR 2SC1623	
Q703	8-729-100-75	TRANSISTOR 2SA812-M5	
Q704	8-729-100-66	TRANSISTOR 2SC1623	
Q705	8-729-100-66	TRANSISTOR 2SC1623	
Q706	8-729-100-66	TRANSISTOR 2SC1623	
Q710	8-729-100-75	TRANSISTOR 2SA812-M5	
Q711	8-729-100-66	TRANSISTOR 2SC1623	
Q712	8-729-100-66	TRANSISTOR 2SC1623	
Q713	8-729-100-66	TRANSISTOR 2SC1623	
Q714	8-729-100-66	TRANSISTOR 2SC1623	
Q715	8-729-100-66	TRANSISTOR 2SC1623	
Q716	8-729-100-66	TRANSISTOR 2SC1623	
Q717	8-729-100-66	TRANSISTOR 2SC1623	
Q719	8-729-100-66	TRANSISTOR 2SC1623	
Q720	8-729-100-66	TRANSISTOR 2SC1623	
Q721	8-729-100-66	TRANSISTOR 2SC1623	
Q801	8-729-100-75	TRANSISTOR 2SA812-M5	
Q802	8-729-100-75	TRANSISTOR 2SA812-M5	
Q803	8-729-100-75	TRANSISTOR 2SA812-M5	
Q804	8-729-100-75	TRANSISTOR 2SA812-M5	
Q805	8-729-100-66	TRANSISTOR 2SC1623	
Q806	8-729-100-75	TRANSISTOR 2SA812-M5	
Q807	8-729-100-66	TRANSISTOR 2SC1623	
Q810	8-729-100-66	TRANSISTOR 2SC1623	
Q811	8-729-100-75	TRANSISTOR 2SA812-M5	
Q812	8-729-901-01	TRANSISTOR DTC144EK	
Q813	8-729-100-75	TRANSISTOR 2SA812-M5	
Q814	8-729-100-66	TRANSISTOR 2SC1623	
Q815	8-729-100-66	TRANSISTOR 2SC1623	
Q816	8-729-100-66	TRANSISTOR 2SC1623	
Q817	8-729-100-66	TRANSISTOR 2SC1623	
Q818	8-729-100-66	TRANSISTOR 2SC1623	
Q819	8-729-100-75	TRANSISTOR 2SA812-M5	
Q820	8-729-901-01	TRANSISTOR DTC144EK	
Q821	8-729-901-00	TRANSISTOR DTC124EK	
Q824	8-729-100-66	TRANSISTOR 2SC1623	
Q825	8-729-100-66	TRANSISTOR 2SC1623	
Q826	8-729-100-66	TRANSISTOR 2SC1623	
Q900	8-729-906-45	TRANSISTOR DTA143XK	
Q901	8-729-901-01	TRANSISTOR DTC144EK	
Q902	8-729-901-01	TRANSISTOR DTC144EK	
Q903	8-729-901-01	TRANSISTOR DTC144EK	
Q904	8-729-901-06	TRANSISTOR DTA144EK	
Q905	8-729-901-01	TRANSISTOR DTC144EK	
Q906	8-729-100-75	TRANSISTOR 2SA812-M5	

RESISTOR

R001	1-216-047-00	METAL GLAZE	820	5%	1/10W
R002	1-216-041-00	METAL GLAZE	470	5%	1/10W
R003	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R004	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R005	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R006	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R007	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R008	1-216-041-00	METAL GLAZE	470	5%	1/10W
R009	1-216-041-00	METAL GLAZE	470	5%	1/10W
R010	1-216-103-00	METAL GLAZE	180K	5%	1/10W
R011	1-216-043-00	METAL GLAZE	560	5%	1/10W
R012	1-216-041-00	METAL GLAZE	470	5%	1/10W
R013	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R014	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R015	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R016	1-216-073-00	METAL GLAZE	10K	5%	1/10W

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R017	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R018	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R019	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R020	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R021	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R022	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R023	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R024	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R025	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R026	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R027	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R028	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R029	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R030	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R031	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R032	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R033	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R034	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R035	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R036	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R037	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R038	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R039	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R040	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R041	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R044	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R047	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R048	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R051	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R052	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R053	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R054	1-216-092-00	METAL GLAZE	62K	5%	1/10W	
R055	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R057	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R059	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R061	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R063	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R065	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R066	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R067	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R068	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R070	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R071	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R072	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R073	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R074	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R075	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R076	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R077	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R080	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R081	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R082	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R083	1-216-097-00	METAL GLAZE	100K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R087	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R088	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R090	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R091	1-216-092-00	METAL GLAZE	62K	5%	1/10W	
R092	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R093	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R101	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R102	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R104	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R108	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R110	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R111	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R112	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R113	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R114	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R116	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R117	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R118	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R119	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R120	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R121	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R122	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R123	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R124	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R125	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R126	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R127	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R128	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R129	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R130	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R131	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R132	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R133	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R134	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R135	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R136	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R137	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R150	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R151	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R152	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R153	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R154	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R155	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R156	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R157	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R158	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R159	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R166	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R167	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R168	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R169	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R170	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R171	1-216-045-00	METAL GLAZE	680	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R172	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R173	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R174	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R180	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R181	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R185	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R191	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R192	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R200	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R202	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R204	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R205	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R206	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R207	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R208	1-216-653-11	METAL CHIP	1.2K	0.50%	1/10W	
R209	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R210	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R211	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R212	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R213	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R214	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R215	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R216	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R217	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R218	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R219	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R220	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R221	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R222	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R223	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R224	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R225	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R226	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R227	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R228	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R229	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R230	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R231	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R232	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R233	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R234	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R236	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R237	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R238	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R301	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R302	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R303	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R304	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R305	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R306	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W	
R307	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R308	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R309	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R310	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R311	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R350	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R351	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R352	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R354	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R355	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R356	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R357	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R358	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R359	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R360	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R361	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R362	1-216-647-11	METAL CHIP	680	0.50%	1/10W	
R363	1-216-647-11	METAL CHIP	680	0.50%	1/10W	
R364	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R365	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R366	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R367	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R368	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R369	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R370	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R371	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R372	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R373	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R374	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R375	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R376	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R377	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R378	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R379	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R380	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R408	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R409	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R410	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R412	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R413	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R414	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R415	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R416	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R417	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R418	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R419	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R420	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R421	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R422	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R423	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R424	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R426	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R427	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R428	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R429	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R431	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R432	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R433	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R434	1-216-042-00	METAL GLAZE	510	5%	1/10W	
R435	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R436	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R437	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R440	1-247-691-11	CARBON	18	5%	1/4W	F
R441	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R442	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R446	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R447	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R448	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R449	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R450	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R451	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R452	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R453	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R454	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R455	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R456	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R460	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R461	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R462	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R463	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R464	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R465	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R466	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R468	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R490	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R500	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R501	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R502	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R503	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R504	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R505	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R506	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R507	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R508	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R509	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R510	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R511	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R512	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R513	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R514	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R515	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R516	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R517	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R518	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R519	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R520	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R521	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R522	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R523	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R524	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R525	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R526	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R527	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R528	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R529	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R530	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R531	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R532	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R533	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R535	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R536	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R537	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R542	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R543	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R544	1-216-653-11	METAL CHIP	1.2K	0.50%	1/10W	
R545	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R546	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R547	1-216-649-11	METAL CHIP	820	0.50%	1/10W	
R548	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R549	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R550	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R551	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R553	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R554	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R555	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R556	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R557	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R558	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R559	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R560	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R561	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R562	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R563	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R564	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R565	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R566	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R567	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R568	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R569	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R570	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R571	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R572	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R573	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R574	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R575	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R576	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R577	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R578	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R579	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R580	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R581	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R582	1-216-079-00	METAL GLAZE	18K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R583	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R584	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R585	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R586	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R587	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R588	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R589	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R590	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R591	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R592	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R593	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R594	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R595	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R596	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R601	1-216-036-00	METAL GLAZE	300	5%	1/10W	
R612	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R613	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R614	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R620	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R621	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R622	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R623	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R624	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R625	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R627	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R628	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R630	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R631	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R633	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R635	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R636	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R640	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R701	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R702	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R703	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R704	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R705	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R706	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R707	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R708	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W	
R709	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R710	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R711	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R712	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R713	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R714	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R716	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R722	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R723	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R724	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R725	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R726	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R727	1-216-089-00	METAL GLAZE	47K	5%	1/10W	

Ref.No	Part No.	Description				Remark
R729	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R730	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W	
R731	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R732	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R733	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R734	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R735	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R737	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R738	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R739	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R740	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R741	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R742	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R751	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R752	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R753	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R754	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W	
R755	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R756	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R757	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R758	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R759	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R760	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R761	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R762	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R801	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R802	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R803	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R804	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R805	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R806	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R807	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R808	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R809	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R810	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R811	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R812	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R813	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R814	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R815	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R816	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R817	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R818	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R819	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R820	1-216-040-00	METAL GLAZE	430	5%	1/10W	
R821	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R822	1-216-111-00	METAL GLAZE	390K	5%	1/10W	
R823	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R824	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R825	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R826	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R827	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R828	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R829	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R830	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R831	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R832	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R833	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R834	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R835	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R836	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R837	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R838	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R839	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R840	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R841	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R842	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R843	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R845	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R848	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R855	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R856	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R857	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R858	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R859	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R860	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R861	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R862	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R863	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R864	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R865	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R866	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R867	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R868	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R869	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R870	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R871	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R872	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R873	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R874	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R875	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R876	1-247-705-11	CARBON	270	5%	1/4W	
R877	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R880	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R881	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R886	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R887	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R888	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R889	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R890	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R891	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R892	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R893	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R894	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R895	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R896	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R897	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R899	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R900	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R901	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	

VARIABLE RESISTOR

RV001	1-228-991-00	RES, ADJ, CARBON	2.2K
RV002	1-228-993-00	RES, ADJ, CARBON	4.7K
RV003	1-228-993-00	RES, ADJ, CARBON	4.7K
RV004	1-228-994-00	RES, ADJ, CARBON	10K
RV101	1-230-866-11	RES, ADJ, METAL GRAZE	470
RV102	1-230-873-11	RES, ADJ, METAL GRAZE	47K
RV200	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV201	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV202	1-230-869-11	RES, ADJ, METAL GRAZE	4.7K
RV203	1-230-869-11	RES, ADJ, METAL GRAZE	4.7K
RV204	1-230-869-11	RES, ADJ, METAL GRAZE	4.7K
RV301	1-230-869-11	RES, ADJ, METAL GRAZE	4.7K
RV351	1-237-665-21	RES, ADJ, METAL GRAZE	220K
RV352	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV353	1-230-868-11	RES, ADJ, METAL GRAZE	2.2K
RV402	1-230-873-11	RES, ADJ, METAL GRAZE	47K
RV403	1-230-870-11	RES, ADJ, METAL GRAZE	10K
RV404	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV500	1-230-866-11	RES, ADJ, METAL GRAZE	470
RV501	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV502	1-230-869-11	RES, ADJ, METAL GRAZE	4.7K
RV601	1-230-870-11	RES, ADJ, METAL GRAZE	10K
RV602	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV801	1-230-867-11	RES, ADJ, METAL GRAZE	1K
RV802	1-230-867-11	RES, ADJ, METAL GRAZE	1K

TRANSFORMER

T001	1-427-587-11	TRANSFORMER (I/O)
T002	1-427-587-11	TRANSFORMER (I/O)
T401	1-404-410-00	COIL, TRAP

CRYSTAL

X401	1-567-505-41	OSCILLATOR, CRYSTAL

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	*A-6713-358-A	AD-14 BOARD, COMPLETE (Ref. No. 8000 series)
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	1-520-499-21	METER, LEVEL
	1-520-499-31	METER, LEVEL
	3-726-197-01	HOLDER, LCD

CAPACITOR

C001	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C002	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C003	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C005	1-130-471-00	MYLAR	0.001MF	5%	50V
C006	1-130-482-00	MYLAR	0.0082MF	5%	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C007	1-130-477-00	MYLAR	0.0033MF	5%	50V
C008	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C009	1-126-157-11	ELECT	10MF	20%	16V
C010	1-126-157-11	ELECT	10MF	20%	16V
C011	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C012	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C013	1-124-229-00	ELECT	33MF	20%	10V
C014	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C015	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C016	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C017	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C018	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C019	1-123-661-00	ELECT	100MF	20%	6.3V
C026	1-124-589-11	ELECT	47MF	20%	10V
C029	1-124-286-00	ELECT	33MF	20%	10V
C031	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C032	1-130-485-00	FILM	0.015MF	5%	50V
C033	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C034	1-130-485-00	FILM	0.015MF	5%	50V
C035	1-130-498-00	MYLAR	0.18MF	5%	50V
C036	1-130-491-00	FILM	0.047MF	5%	50V
C037	1-130-469-00	MYLAR	680PF	5%	50V
C038	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C039	1-130-475-00	MYLAR	0.0022MF	5%	50V
C040	1-130-493-00	FILM	0.068MF	5%	50V
C041	1-130-485-00	FILM	0.015MF	5%	50V
C042	1-123-611-00	ELECT	1MF	20%	50V
C043	1-126-157-11	ELECT	10MF	20%	16V
C047	1-124-993-71	ELECT	47MF	20%	10V
C050	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C051	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C053	1-124-234-00	ELECT	22MF	20%	16V
C054	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C056	1-126-162-11	ELECT	3.3MF	20%	50V
C057	1-126-162-11	ELECT	3.3MF	20%	50V
C058	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C059	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C060	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C061	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C064	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C065	1-124-148-00	ELECT	100MF	20%	25V
C066	1-163-141-00	CERAMIC CHIP	0.001MF		50V
C067	1-126-228-11	ELECT	330MF	20%	6.3V
C099	1-126-154-11	ELECT	47MF	20%	6.3V
C103	1-124-288-00	ELECT	22MF	20%	10V
C104	1-130-497-00	MYLAR	0.15MF	5%	50V
C105	1-130-497-00	MYLAR	0.15MF	5%	50V
C107	1-124-288-00	ELECT	22MF	20%	10V
C109	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C110	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C111	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C112	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C113	1-124-234-00	ELECT	22MF	20%	16V
C114	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C115	1-124-234-00	ELECT	22MF	20%	16V
C116	1-124-234-00	ELECT	22MF	20%	16V
C201	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C202	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C203	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C205	1-130-471-00	MYLAR	0.001MF	5%	50V
C206	1-130-482-00	MYLAR	0.0082MF	5%	50V
C207	1-130-477-00	MYLAR	0.0033MF	5%	50V
C208	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C209	1-126-157-11	ELECT	10MF	20%	16V
C210	1-126-157-11	ELECT	10MF	20%	16V
C211	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C212	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C213	1-124-984-11	ELECT	470MF	20%	6.3V
C214	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C215	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C216	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C217	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C218	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C219	1-123-661-00	ELECT	100MF	20%	6.3V
C220	1-136-366-00	FILM	0.1MF	5%	50V
C221	1-126-094-11	ELECT	4.7MF	20%	25V
C222	1-130-477-00	MYLAR	0.0033MF	5%	50V
C223	1-130-471-00	MYLAR	0.001MF	5%	50V
C226	1-124-589-11	ELECT	47MF	20%	10V
C227	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C228	1-124-985-41	ELECT	1000MF	20%	6.3V
C229	1-124-286-00	ELECT	33MF	20%	10V
C231	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C232	1-130-485-00	FILM	0.015MF	5%	50V
C233	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C234	1-130-485-00	FILM	0.015MF	5%	50V
C235	1-130-498-00	MYLAR	0.18MF	5%	50V
C236	1-130-491-00	FILM	0.047MF	5%	50V
C237	1-130-469-00	MYLAR	680PF	5%	50V
C238	1-163-086-00	CERAMIC CHIP	3PF	0.25PF	50V
C239	1-130-475-00	MYLAR	0.0022MF	5%	50V
C240	1-130-493-00	FILM	0.068MF	5%	50V
C241	1-130-485-00	FILM	0.015MF	5%	50V
C242	1-123-611-00	ELECT	1MF	20%	50V
C243	1-126-157-11	ELECT	10MF	20%	16V
C244	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C245	1-124-635-00	ELECT	220MF	20%	6.3V
C247	1-124-993-71	ELECT	47MF	20%	10V
C250	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C251	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C253	1-124-234-00	ELECT	22MF	20%	16V
C254	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C256	1-126-162-11	ELECT	3.3MF	20%	50V
C257	1-126-162-11	ELECT	3.3MF	20%	50V
C258	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C259	1-136-017-00	CERAMIC CHIP	0.0047MF		50V

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description			Remark
C260	1-136-017-00	CERAMIC CHIP 0.0047MF			50V
C261	1-136-017-00	CERAMIC CHIP 0.0047MF			50V
C299	1-126-154-11	ELECT	47MF	20%	6.3V
C301	1-126-157-11	ELECT	10MF	20%	16V
C302	1-126-094-11	ELECT	4.7MF	20%	25V
C303	1-126-157-11	ELECT	10MF	20%	16V
C304	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C305	1-124-287-00	ELECT	10MF	20%	10V
C306	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C307	1-124-234-00	ELECT	22MF	20%	16V
C308	1-126-157-11	ELECT	10MF	20%	16V
C309	1-124-589-11	ELECT	47MF	20%	10V
C310	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C311	1-124-993-71	ELECT	47MF	20%	10V
C321	1-123-661-00	ELECT	100MF	20%	6.3V
C322	1-124-472-11	ELECT	470MF	20%	6.3V
C323	1-124-584-00	ELECT	100MF	20%	10V
C324	1-124-584-00	ELECT	100MF	20%	10V
C325	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C326	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C327	1-124-584-00	ELECT	100MF	20%	10V
C329	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C331	1-126-157-11	ELECT	10MF	20%	16V
C332	1-123-661-00	ELECT	100MF	20%	6.3V
C341	1-124-140-00	ELECT	220MF	20%	10V
C342	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C343	1-124-584-00	ELECT	100MF	20%	10V
C351	1-126-157-11	ELECT	10MF	20%	16V
C352	1-126-094-11	ELECT	4.7MF	20%	25V
C353	1-126-157-11	ELECT	10MF	20%	16V
C354	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C355	1-124-287-00	ELECT	10MF	20%	10V
C356	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C357	1-124-234-00	ELECT	22MF	20%	16V
C358	1-126-157-11	ELECT	10MF	20%	16V
C359	1-124-589-11	ELECT	47MF	20%	10V
C360	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C361	1-124-993-71	ELECT	47MF	20%	10V
C371	1-130-475-00	MYLAR	0.0022MF	5%	50V
C372	1-130-475-00	MYLAR	0.0022MF	5%	50V
C401	1-130-479-00	MYLAR	0.0047MF	5%	50V
C402	1-130-476-00	MYLAR	0.0027MF	5%	50V
C403	1-126-157-11	ELECT	10MF	20%	16V
C404	1-130-476-00	MYLAR	0.0027MF	5%	50V
C405	1-130-471-00	MYLAR	0.001MF	5%	50V
C406	1-130-471-00	MYLAR	0.001MF	5%	50V
C410	1-124-635-00	ELECT	220MF	20%	6.3V
C421	1-126-157-11	ELECT	10MF	20%	16V
C422	1-126-157-11	ELECT	10MF	20%	16V
C502	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C503	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C504	1-124-584-00	ELECT	100MF	20%	10V
C505	1-124-985-41	ELECT	1000MF	20%	6.3V

Ref.No	Part No.	Description			Remark
C511	1-124-993-71	ELECT	47MF	20%	10V
C512	1-126-157-11	ELECT	10MF	20%	16V
C513	1-126-157-11	ELECT	10MF	20%	16V
C514	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C515	1-124-589-11	ELECT	47MF	20%	10V
C520	1-126-157-11	ELECT	10MF	20%	16V
C523	1-126-157-11	ELECT	10MF	20%	16V
C524	1-124-584-00	ELECT	100MF	20%	10V
C525	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C526	1-124-234-00	ELECT	22MF	20%	16V
C531	1-124-997-11	ELECT	470MF	20%	10V
C532	1-124-234-00	ELECT	22MF	20%	16V
C533	1-124-995-11	ELECT	220MF	20%	10V
C534	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C541	1-124-140-00	ELECT	220MF	20%	10V
C542	1-136-017-00	CERAMIC CHIP	0.0047MF		50V
C543	1-124-584-00	ELECT	100MF	20%	10V
C561	1-124-993-71	ELECT	47MF	20%	10V
C562	1-126-157-11	ELECT	10MF	20%	16V
C563	1-126-157-11	ELECT	10MF	20%	16V
C564	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C565	1-124-589-11	ELECT	47MF	20%	10V
C571	1-123-661-00	ELECT	100MF	20%	6.3V
C583	1-124-287-00	ELECT	10MF	20%	10V
C584	1-124-287-00	ELECT	10MF	20%	10V
C585	1-126-094-11	ELECT	4.7MF	20%	25V
C586	1-126-094-11	ELECT	4.7MF	20%	25V
C587	1-124-254-00	ELECT	0.68MF	20%	50V
C588	1-124-254-00	ELECT	0.68MF	20%	50V
C589	1-124-584-00	ELECT	100MF	20%	10V
C601	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C602	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C701	1-135-161-21	TANTAL. CHIP	22MF	20%	6.3V
C702	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C703	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C704	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C705	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C706	1-135-088-21	TANTAL. CHIP	2.2MF	20%	20V
C707	1-135-088-21	TANTAL. CHIP	2.2MF	20%	20V
C708	1-162-638-11	CERAMIC CHIP	1MF		16V
C709	1-162-638-11	CERAMIC CHIP	1MF		16V
C710	1-163-021-00	CERAMIC CHIP	0.01MF		50V

CONNECTOR

CN001	*1-506-481-11	PIN, CONNECTOR 2P
CN002	*1-506-472-11	PIN, CONNECTOR 7P
CN003	*1-506-488-11	PIN, CONNECTOR 9P
CN004	*1-506-469-11	PIN, CONNECTOR 4P
CN005	*1-506-489-11	PIN, CONNECTOR 10P
CN006	*1-506-486-11	PIN, CONNECTOR 7P
CN007	*1-506-467-11	PIN, CONNECTOR 2P
CN008	*1-506-467-11	PIN, CONNECTOR 2P
CN009	*1-506-470-11	PIN, CONNECTOR 5P

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
CN010	*1-506-469-11	PIN, CONNECTOR 4P	
CN011	*1-506-490-21	PIN, CONNECTOR 11P	
		COMPOSITION CIRCUIT BLOCK	
CP001	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP003	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP006	1-232-895-11	COMPOSITION CIRCUIT BLOCK	
CP007	1-232-898-11	COMPOSITION CIRCUIT BLOCK	
CP008	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP009	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP010	1-232-888-11	COMPOSITION CIRCUIT BLOCK	
CP020	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP203	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP206	1-233-077-11	COMPOSITION CIRCUIT BLOCK	
CP207	1-233-078-11	COMPOSITION CIRCUIT BLOCK	
CP208	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP209	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
CP210	1-232-894-11	COMPOSITION CIRCUIT BLOCK	
CP220	1-217-658-11	JUMPER, ADJUSTABLE 0.22	
		TRIMMER	
CT701	1-141-331-11	CAP, VAR, TRIMMER (CHIP) (30PF)	
		DIODE	
D001	8-719-914-42	DIODE DA204K	
D201	8-719-914-42	DIODE DA204K	
D210	8-719-100-05	DIODE 1S2837	
D301	8-719-105-83	DIODE RD5.1M-B3	
D401	8-719-100-05	DIODE 1S2837	
D402	8-719-100-05	DIODE 1S2837	
D571	8-719-100-05	DIODE 1S2837	
D572	8-719-100-05	DIODE 1S2837	
D701	8-719-801-48	DIODE 1SS193	
D702	8-719-106-79	DIODE RD13M-B1	
D703	8-719-938-72	DIODE SB01-05CP	
D704	8-719-801-48	DIODE 1SS193	
D705	8-719-106-53	DIODE RD10M-B2	
		FILTER	
FL001	1-235-596-11	FILTER, BAND PASS	
FL002	1-235-597-11	FILTER, BAND PASS	
FL003	1-235-607-11	FILTER, BAND PASS	
FL004	1-235-608-11	FILTER, BAND PASS	
FL101	1-235-598-21	FILTER, LOW PASS	
FL102	1-236-213-11	LPF (1.9MHz)	
FL202	1-236-214-11	LPF (1.7MHz)	
		IC	
IC001	8-752-034-60	IC CXA1327R	
IC002	8-752-034-58	IC CXA1325R	
IC003	8-752-034-57	IC CXA1324R	
IC004	8-752-320-61	IC CXD1049P	
IC202	8-752-034-58	IC CXA1325R	

Ref.No	Part No.	Description	Remark
IC301	8-759-111-56	IC UPC4572G2	
IC302	8-759-603-27	IC M5201FP	
IC303	8-759-603-27	IC M5201FP	
IC501	8-759-602-67	IC M5278L05	
IC502	8-752-017-60	IC CX20176	
IC503	8-759-946-44	IC TK15120M	
IC504	8-759-946-44	IC TK15120M	
IC582	8-759-961-38	IC BA6138	
IC583	8-759-701-01	IC NJM2904M	
IC701	8-759-141-89	IC UPD75306GF	
IC702	8-759-100-93	IC UPC393G2	
		COIL	
L201	1-410-120-11	INDUCTOR 1.2MMH	
L371	1-410-095-41	INDUCTOR 47MMH	
L372	1-410-095-41	INDUCTOR 47MMH	
L701	1-410-393-11	INDUCTOR CHIP 100UH	
		COATING PIN	
LP001	*3-695-075-01	PIN, LEAD, COATING	
LP002	*3-695-075-01	PIN, LEAD, COATING	
		DISPLAY PANEL	
ND701	1-808-002-31	DISPLAY PANEL, LIQUID CRYSTAL	
		PILOT LAMP	
PL701	1-518-470-00	LAMP, PILOT	
PL702	1-518-470-00	LAMP, PILOT	
PL703	1-518-470-00	LAMP, PILOT	
		TRANSISTOR	
Q201	8-729-901-01	TRANSISTOR DTC144EK	
Q301	8-729-100-66	TRANSISTOR 2SC1623	
Q302	8-729-904-07	TRANSISTOR FMG2	
Q303	8-729-100-66	TRANSISTOR 2SC1623	
Q304	8-729-100-66	TRANSISTOR 2SC1623	
Q305	8-729-100-66	TRANSISTOR 2SC1623	
Q306	8-729-100-66	TRANSISTOR 2SC1623	
Q307	8-729-100-66	TRANSISTOR 2SC1623	
Q401	8-729-100-75	TRANSISTOR 2SA812-M5	
Q402	8-729-402-13	TRANSISTOR XN1501	
Q403	8-729-100-75	TRANSISTOR 2SA812-M5	
Q501	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-100-66	TRANSISTOR 2SC1623	
Q701	8-729-100-75	TRANSISTOR 2SA812-M5	
Q702	8-729-220-93	TRANSISTOR 2SK209G	
Q703	8-729-901-01	TRANSISTOR DTC144EK	
Q704	8-729-100-75	TRANSISTOR 2SA812-M5	
Q705	8-729-901-01	TRANSISTOR DTC144EK	
Q706	8-729-100-66	TRANSISTOR 2SC1623	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
Q707	8-729-199-92	TRANSISTOR 2SD999				
Q708	8-729-901-01	TRANSISTOR DTC144EK				
Q709	8-729-100-66	TRANSISTOR 2SC1623				
		RESISTOR				
R001	1-216-116-00	METAL GLAZE	620K	5%	1/10W	
R002	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R003	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R004	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R006	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R008	1-216-086-00	METAL GLAZE	36K	5%	1/10W	
R010	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R011	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R021	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R022	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R023	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R024	1-216-042-00	METAL GLAZE	510	5%	1/10W	
R025	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R026	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R027	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R028	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R029	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R030	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R031	1-216-076-00	METAL GLAZE	13K	5%	1/10W	
R032	1-216-076-00	METAL GLAZE	13K	5%	1/10W	
R033	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R034	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R035	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R036	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R037	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R038	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R040	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R041	1-216-042-00	METAL GLAZE	510	5%	1/10W	
R042	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R043	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R044	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R045	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R046	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R047	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R048	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R050	1-216-084-00	METAL GLAZE	30K	5%	1/10W	
R051	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R052	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R053	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R054	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R055	1-216-084-00	METAL GLAZE	30K	5%	1/10W	
R056	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R057	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R059	1-216-080-00	METAL GLAZE	20K	5%	1/10W	
R064	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R065	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R066	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R069	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R083	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R085	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R093	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R094	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R101	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R104	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R105	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R106	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R107	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R108	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R109	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R111	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R112	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R113	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R114	1-216-078-00	METAL GLAZE	16K	5%	1/10W	
R115	1-216-078-00	METAL GLAZE	16K	5%	1/10W	
R116	1-216-066-00	METAL GLAZE	5.1K	5%	1/10W	
R119	1-216-066-00	METAL GLAZE	5.1K	5%	1/10W	
R121	1-216-066-00	METAL GLAZE	5.1K	5%	1/10W	
R123	1-216-066-00	METAL GLAZE	5.1K	5%	1/10W	
R201	1-216-116-00	METAL GLAZE	620K	5%	1/10W	
R202	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R203	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R204	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R206	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R208	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R210	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R211	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R214	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R215	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R216	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R219	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R221	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R222	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R223	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R224	1-216-042-00	METAL GLAZE	510	5%	1/10W	
R225	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R226	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R227	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R228	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R229	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R230	1-216-022-00	METAL GLAZE	75	5%	1/10W	
R231	1-216-076-00	METAL GLAZE	13K	5%	1/10W	
R232	1-216-076-00	METAL GLAZE	13K	5%	1/10W	
R233	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R234	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R235	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R236	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R237	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R238	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R241	1-216-042-00	METAL GLAZE	510	5%	1/10W	
R242	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R243	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R244	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R245	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R248	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R250	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R251	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R252	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R254	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R255	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R264	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R265	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R266	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R269	1-216-066-00	METAL GLAZE	5.1K	5%	1/10W	
R283	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R293	1-216-042-00	METAL GLAZE	510	5%	1/10W	
R294	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R301	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R302	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R303	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R304	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R305	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R306	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R307	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R308	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R309	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R310	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R311	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R312	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R313	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R314	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R315	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R316	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R317	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R321	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R322	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R323	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R324	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R326	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R328	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R331	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R332	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R333	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R334	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R341	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R342	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R351	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R352	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R353	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R354	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R355	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R356	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R357	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R358	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R359	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R360	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R361	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R362	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R363	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R364	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R365	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R366	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R367	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R371	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R372	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R401	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R402	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R403	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R404	1-216-082-00	METAL GLAZE	24K	5%	1/10W	
R405	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R408	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R409	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R412	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R413	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R414	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R416	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R450	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R451	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R501	1-247-495-11	CARBON	180	5%	1/4W	
R511	1-247-710-11	CARBON	560	5%	1/4W	
R512	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R513	1-247-713-11	CARBON	1K	5%	1/4W	
R515	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R516	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R517	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R518	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R519	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R520	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R521	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R523	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R524	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R525	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R526	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R527	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R528	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R529	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R530	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R531	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R532	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R533	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R534	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R536	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R541	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R542	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R547	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R548	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R551	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R552	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description				Remark
R553	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R561	1-247-710-11	CARBON	560	5%	1/4W	
R562	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R563	1-247-713-11	CARBON	1K	5%	1/4W	
R565	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R566	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R567	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R568	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R569	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R570	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R571	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R581	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R582	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R587	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R588	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R589	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R590	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R591	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R592	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R593	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R594	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R595	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R596	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R701	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R702	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R703	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R704	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R705	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R706	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R710	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R711	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R712	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R713	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R714	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R715	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R717	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R718	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R719	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R720	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R721	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R722	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R723	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R724	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R725	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R726	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R727	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R728	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R730	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R731	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R732	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R733	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R734	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R735	1-216-041-00	METAL GLAZE	470	5%	1/10W	

Ref.No	Part No.	Description	Remark
		VARIABLE RESISTOR	
RV301	1-238-265-11	RES, VAR, CARBON 20K (REC LEVEL 1CH)	
RV302	1-238-265-11	RES, VAR, CARBON 20K (REC LEVEL 2CH)	
RV551	1-230-226-00	RES, VAR, CARBON 10K (SHARPNESS)	
RV581	1-230-870-11	RES, ADJ, METAL GRAZE 10K	
RV582	1-230-870-11	RES, ADJ, METAL GRAZE 10K	
RV701	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K	
		SWITCH	
S001	1-570-131-21	SWITCH, SLIDE (AUDIO MONITOR)	
S002	1-570-131-21	SWITCH, SLIDE (AUDIO MONITOR)	
S003	1-554-574-00	SWITCH, SLIDE (EDIT)	
S701	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (DATE/UP)	
S702	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (TIME/SET)	
S703	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (SELECT)	
S704	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (COUNTER RESET)	
S705	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (TAPE RETURN)	
S706	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE)(BATT CHECK)	
S707	1-570-909-21	SWITCH, TACTIL (REFLOW TYPE) (LIGHT)	
		CRYSTAL	
X001	1-567-262-11	VIBRATOR, CRYSTAL (150KHz)	
X701	1-527-997-21	VIBRATOR, CRYSTAL (32.7KHz)	
X702	1-567-160-21	OSCILLATOR, CERAMIC (4.19MHz)	

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*A-6715-410-A MB-17 BOARD, COMPLETE (Ref. No. 7000 series)
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CAPACITOR

C001	1-124-465-00	ELECT	0.47MF	20%	50V
C002	1-123-321-00	ELECT	220MF	20%	16V
C003	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C004	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C005	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C006	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C007	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C010	1-124-225-00	ELECT	100MF	20%	6.3V
C011	1-124-225-00	ELECT	100MF	20%	6.3V
C012	1-163-035-00	CERAMIC CHIP	0.047MF		50V

CONNECTOR

CN003	*1-564-002-00	PIN, CONNECTOR 3P
CN004	*1-564-013-00	PIN, CONNECTOR 3P
CN005	*1-564-012-00	PIN, CONNECTOR 2P
CN006	*1-564-013-00	PIN, CONNECTOR 3P
CN007	*1-564-012-00	PIN, CONNECTOR 2P

DIODE

D001	8-719-914-43	DIODE DAN202K

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
D002	8-719-901-33	DIODE 1SS133	
D003	8-719-901-33	DIODE 1SS133	
D004	8-719-200-02	DIODE 10E2	
D005	8-719-901-33	DIODE 1SS133	
D006	8-719-200-02	DIODE 10E2	
D007	8-719-105-38	DIODE RD3.0M-B1	
D008	8-719-914-44	DIODE DAP202K	
D009	8-719-914-44	DIODE DAP202K	
D010	8-719-901-33	DIODE 1SS133T	
D011	8-719-901-33	DIODE 1SS133T	
D012	8-719-901-33	DIODE 1SS133T	
D013	8-719-901-33	DIODE 1SS133T	
D014	8-719-914-43	DIODE DAN202K	
D016	8-719-914-43	DIODE DAN202K	
D017	8-719-914-44	DIODE DAP202K	
		IC	
IC001	8-757-991-00	IC CX-7991	
IC002	8-759-100-93	IC UPC393G2	
		IC LINK	
PS001⚠	1-532-637-00	LINK, IC, ICP-N25 1.0A	
PS002⚠	1-532-637-00	LINK, IC, ICP-N25 1.0A	
		TRANSISTOR	
Q001	8-729-199-92	TRANSISTOR 2SD999	
Q002	8-729-199-92	TRANSISTOR 2SD999	
Q003	8-729-100-76	TRANSISTOR 2SA812	
Q004	8-729-116-42	TRANSISTOR 2SD1164	
Q005	8-729-116-42	TRANSISTOR 2SD1164	
Q006	8-729-101-07	TRANSISTOR 2SB798	
Q007	8-729-101-07	TRANSISTOR 2SB798	
Q008	8-729-199-92	TRANSISTOR 2SD999	
Q009	8-729-199-92	TRANSISTOR 2SD999	
Q010	8-729-271-22	TRANSISTOR 2SC2712G	
Q011	8-729-271-22	TRANSISTOR 2SC2712G	
Q012	8-729-271-22	TRANSISTOR 2SC2712G	
Q013	8-729-100-76	TRANSISTOR 2SA812	
Q014	8-729-116-42	TRANSISTOR 2SD1164	
Q015	8-729-271-22	TRANSISTOR 2SC2712G	
Q016	8-729-271-22	TRANSISTOR 2SC2712G	
Q017	8-729-271-23	TRANSISTOR 2SC2712	
Q018	8-729-271-23	TRANSISTOR 2SC2712	
		RESISTOR	
R001	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R002	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R003	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R004	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R005	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R006	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R007	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R008	1-216-056-00	METAL GLAZE 2K 5% 1/10W	
R010	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R011	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R012	1-216-056-00	METAL GLAZE 2K 5% 1/10W	
R013	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R014	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R015	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R016	1-216-074-00	METAL GLAZE 11K 5% 1/10W	
R017	1-216-064-00	METAL GLAZE 4.3K 5% 1/10W	
R018	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R019	1-216-084-00	METAL GLAZE 30K 5% 1/10W	
R020	1-216-115-00	METAL GLAZE 560K 5% 1/10W	
R021	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R022	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R023	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R024	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R025	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R026	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R027	1-216-076-00	METAL GLAZE 13K 5% 1/10W	
R028	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R029	1-216-066-00	METAL GLAZE 5.1K 5% 1/10W	
R030	1-216-080-00	METAL GLAZE 20K 5% 1/10W	
R031	1-216-056-00	METAL GLAZE 2K 5% 1/10W	
R032	1-216-056-00	METAL GLAZE 2K 5% 1/10W	
R033	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R034	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R035	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R036	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R037	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R039	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R040	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R043	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R045	1-216-295-00	METAL GLAZE 0 5% 1/10W	

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*A-6715-411-A SA-26 BOARD, COMPLETE (Ref. No. 6000 series)
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3-726-150-01 RETAINER, ROTOR

CAPACITOR

C001	1-124-257-00	ELECT	2.2MF	20%	50V
C002	1-124-585-11	CERAMIC CHIP	100PF	5%	50V
C003	1-124-589-11	ELECT	47MF	20%	10V
C004	1-126-157-11	ELECT	10MF	20%	16V
C005	1-124-589-11	ELECT	47MF	20%	10V
C006	1-124-589-11	ELECT	47MF	20%	10V
C007	1-124-257-00	ELECT	2.2MF	20%	50V
C009	1-163-021-00	CERAMIC CHIP	0.01MF		
C010	1-124-589-11	ELECT	47MF	20%	10V
C011	1-126-157-11	ELECT	10MF	20%	16V
C012	1-126-157-11	ELECT	10MF	20%	16V
C013	1-124-257-00	ELECT	2.2MF	20%	50V
C014	1-163-038-00	CERAMIC CHIP	0.1MF		25V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

When indicating parts by reference number, please include the board name.

SA-26

Ref.No	Part No.	Description			Remark
C015	1-130-497-00	MYLAR	0.15MF	10%	50V
C017	1-130-482-00	MYLAR	0.0082MF	10%	50V
C018	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C019	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C020	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C022	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C023	1-124-242-00	ELECT	33MF	20%	25V
C024	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C025	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C026	1-124-242-00	ELECT	33MF	20%	16V
C027	1-124-242-00	ELECT	33MF	20%	16V
C028	1-124-589-11	ELECT	47MF	20%	16V
C029	1-124-242-00	ELECT	33MF	20%	16V
C030	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C031	1-124-242-00	ELECT	33MF	20%	16V
C032	1-126-094-11	ELECT	4.7MF	20%	16V
C033	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C034	1-124-255-00	ELECT	1MF	20%	50V
C035	1-124-257-00	ELECT	2.2MF	20%	50V
C036	1-124-257-00	ELECT	2.2MF	20%	50V
C037	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C038	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C039	1-126-094-11	ELECT	4.7MF	20%	16V
C040	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C041	1-126-094-11	ELECT	4.7MF	20%	16V
C042	1-126-094-11	ELECT	4.7MF	20%	16V
C043	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C044	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C045	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C046	1-126-094-11	ELECT	4.7MF	20%	16V
C047	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C048	1-126-162-11	ELECT	3.3MF	20%	25V
C049	1-124-255-00	ELECT	1MF	20%	50V
C050	1-124-255-00	ELECT	1MF	20%	50V
C051	1-124-255-00	ELECT	1MF	20%	50V
C052	1-124-255-00	ELECT	1MF	20%	50V
C053	1-124-255-00	ELECT	1MF	20%	50V
C054	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C055	1-124-255-00	ELECT	1MF	20%	50V
C056	1-124-255-00	ELECT	1MF	20%	50V
C057	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C058	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C059	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C060	1-124-242-00	ELECT	33MF	20%	16V
C062	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C063	1-124-589-11	ELECT	47MF	20%	16V
C065	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V
C067	1-124-589-11	ELECT	47MF	20%	16V
C301	1-124-242-00	ELECT	33MF	20%	25V
C302	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C303	1-124-242-00	ELECT	33MF	20%	25V
C304	1-126-154-11	ELECT	47MF	20%	6.3V
C305	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C306	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C307	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C308	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C309	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C310	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C311	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C313	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C314	1-126-157-11	ELECT	10MF	20%	6.3V
C315	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C316	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C317	1-124-465-00	ELECT	0.47MF	20%	50V
C318	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C319	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C320	1-126-154-11	ELECT	47MF	20%	6.3V
C321	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C322	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C323	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C324	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C325	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C326	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C327	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C328	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C329	1-126-154-11	ELECT	47MF	20%	6.3V
C330	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C331	1-124-225-00	ELECT	100MF	20%	6.3V
C332	1-126-153-11	ELECT	22MF	20%	6.3V
C333	1-124-229-00	ELECT	33MF	20%	10V
C334	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C335	1-163-134-00	CERAMIC CHIP	510PF	5%	50V
C336	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C337	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C338	1-124-465-00	ELECT	0.47MF	20%	50V
C339	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C340	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C341	1-163-134-00	CERAMIC CHIP	510PF	5%	50V
C342	1-124-778-00	ELECT	22MF	20%	6.3V
C343	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C344	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C345	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C347	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C348	1-163-063-00	CERAMIC CHIP	0.022MF		50V
C900	1-124-257-00	ELECT	2.2MF	20%	50V
C901	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C902	1-136-372-91	FILM	0.0012MF	5%	50V
C903	1-124-589-11	ELECT	47MF	20%	16V
C904	1-124-589-11	ELECT	47MF	20%	16V
C905	1-124-584-00	ELECT	100MF	20%	10V
C906	1-130-475-00	FILM	0.0022MF	5%	50V
C907	1-124-255-00	ELECT	1MF	20%	50V
C910	1-124-255-00	ELECT	1MF	20%	50V
C913	1-135-091-00	TANTAL. CHIP	1MF	20%	16V
C914	1-124-234-00	ELECT	22MF	20%	16V
C915	1-130-486-00	FILM	0.018MF	5%	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
C916	1-124-255-00	ELECT	1MF	20%	50V	
C918	1-124-463-00	ELECT	0.1MF	20%	50V	
C920	1-124-255-00	ELECT	1MF	20%	50V	
C922	1-124-234-00	ELECT	22MF	20%	16V	
C924	1-124-589-11	ELECT	47MF	20%	16V	
C925	1-126-094-11	ELECT	4.7MF	20%	16V	
C928	1-130-482-00	FILM	0.0082MF	5%	50V	
C929	1-130-485-00	FILM	0.015MF	5%	50V	
C940	1-130-477-00	FILM	0.0033MF	5%	50V	
C952	1-136-573-11	FILM	0.0056MF	10%	400V	
C953	1-109-675-11	MICA	120PF	5%	500V	
C955	1-130-483-00	FILM	0.01MF	5%	50V	
C956	1-130-473-00	FILM	0.0015MF	5%	50V	
C957	1-124-584-00	ELECT	100MF	20%	10V	
		FILTER				
CF301	1-567-192-11	OSCILLATOR, CERAMIC (4MHz)				
		CONNECTOR				
CN001	*1-560-459-00	PIN, CONNECTOR 3P				
CN002	*1-506-482-11	PIN, CONNECTOR 3P				
CN003	*1-506-482-11	PIN, CONNECTOR 3P				
CN004	*1-506-472-11	PIN, CONNECTOR 7P				
CN005	*1-506-483-21	PIN, CONNECTOR 4P				
CN006	*1-506-469-11	PIN, CONNECTOR 4P				
CN007	*1-506-467-11	PIN, CONNECTOR 2P				
CN008	*1-506-482-11	PIN, CONNECTOR 3P				
CN009	*1-506-482-11	PIN, CONNECTOR 3P				
CN010	*1-506-483-21	PIN, CONNECTOR 4P				
CN011	*1-506-482-11	PIN, CONNECTOR 3P				
CN012	*1-506-481-11	PIN, CONNECTOR 2P				
CN013	*1-506-467-11	PIN, CONNECTOR 2P				
CN014	*1-506-481-11	PIN, CONNECTOR 2P				
CN015	*1-506-470-11	PIN, CONNECTOR 5P				
CN016	*1-560-891-00	PIN, CONNECTOR 3P				
CN017	*1-506-468-11	PIN, CONNECTOR 3P				
CN018	*1-506-484-11	PIN, CONNECTOR 5P				
CN019	*1-506-484-11	PIN, CONNECTOR 5P				
CN024	*1-506-469-11	PIN, CONNECTOR 4P				
CN025	*1-506-483-21	PIN, CONNECTOR 4P				
CN026	*1-506-488-11	PIN, CONNECTOR 9P				
CN027	*1-506-483-21	PIN, CONNECTOR 4P				
CN029	*1-564-743-11	PIN, CONNECTOR 13P				
CN030	*1-566-544-11	CONNECTOR, FPC (NON ZIF) 12P				
CN031	*1-508-797-00	PIN, CONNECTOR 4P				
CN032	*1-506-471-11	PIN, CONNECTOR 6P				
CN034	*1-560-922-11	PIN, CONNECTOR 7P				
CN901	*1-506-481-11	PIN, CONNECTOR 2P				
		TRIMMER				
CT301	1-141-359-51	CAP, VAR, TRIMMER (CHIP)				

Ref.No	Part No.	Description	Remark
		DIODE	
D001	8-719-100-05	DIODE 1S2837	
D002	8-719-101-23	DIODE 1SS123	
D003	8-719-100-05	DIODE 1S2837	
D004	8-719-100-05	DIODE 1S2837	
D005	8-719-100-05	DIODE 1S2837	
D006	8-719-100-05	DIODE 1S2837	
D007	8-719-100-05	DIODE 1S2837	
D008	8-719-100-05	DIODE 1S2837	
D009	8-719-100-05	DIODE 1S2837	
D010	8-719-982-04	DIODE ERB81-004	
D011	8-719-982-04	DIODE ERB81-004	
D012	8-719-982-04	DIODE ERB81-004	
D013	8-719-100-05	DIODE 1S2837	
D014	8-719-101-23	DIODE 1SS123	
D015	8-719-101-23	DIODE 1SS123	
D016	8-719-100-05	DIODE 1S2837	
D017	8-719-100-05	DIODE 1S2837	
D302	8-719-106-89	DIODE RD15M-B2	
D303	8-719-100-05	DIODE 1S2837	
D304	8-719-105-83	DIODE RD5.1M-B3	
D305	8-719-100-03	DIODE 1S2835	
D307	8-719-100-05	DIODE 1S2837	
D308	8-719-105-73	DIODE RD4.7M-B2	
D309	8-719-106-08	DIODE RD6.2M-B2	
D901	8-719-100-03	DIODE 1S2835	
D951	8-719-100-03	DIODE 1S2835	
		CONVERTER UNIT	
DR301 ⚠	1-466-003-11	CONVERTER UNIT, DC-DC	
		FUSE	
F301 ⚠	1-532-625-00	FUSE, GLASS TUBE (125V 1.25A)	
		IC	
IC001	8-759-200-78	IC TC4030BF	
IC002	8-759-200-81	IC TC4053BF	
IC003	8-759-100-94	IC UPC358G2	
IC004	8-759-100-95	IC UPC324G2	
IC005	8-759-923-90	IC BA4560	
IC006	8-759-100-94	IC UPC358G2	
IC007	8-759-906-22	IC MB3759PF	
IC008	8-757-991-00	IC CX-7991	
IC009	8-759-100-93	IC UPC393G2	
IC010	8-759-200-99	IC TC4051BF	
IC011	8-759-200-99	IC TC4051BF	
IC012	8-759-201-01	IC TC4066BF	
IC013	8-759-100-93	IC UPC393G2	
IC014	8-759-100-95	IC UPC324G2	
IC015	8-759-100-95	IC UPC324G2	
IC301	8-752-805-73	IC CXP80116-024Q	

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When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description
IC302⚠	8-759-112-07	IC UPC78N08H
IC303⚠	8-759-105-33	IC UPC78L05J
IC304	8-759-937-56	IC S-8054ALR-LN-S
IC305	8-759-925-43	IC MSM6411B-26GS-VK
IC306	8-759-201-47	IC TA7357AP
IC307	8-759-141-90	IC UPD6145G-602
IC901	8-759-805-20	IC LA7297

COIL

L001	1-408-858-00	COIL, CHOKE	420UH
L002	1-408-857-00	COIL, CHOKE	820UH
L003	1-408-858-00	COIL, CHOKE	420UH
L004	1-408-858-00	COIL, CHOKE	420UH
L005	1-407-169-XX	INDUCTOR	100UH
L302	1-407-169-XX	INDUCTOR	100UH
L303	1-407-169-XX	INDUCTOR	100UH
L304	1-408-989-21	INDUCTOR	470UH
L305	1-408-984-21	INDUCTOR	150UH
L306	1-408-984-21	INDUCTOR	150UH
L307	1-408-970-21	INDUCTOR	10UH
L308	1-408-978-21	INDUCTOR	47UH
L309	1-407-169-XX	INDUCTOR	100UH
L900	1-410-091-31	INDUCTOR	22MMH
L901	1-410-093-11	INDUCTOR	33MMH
L902	1-408-424-00	INDUCTOR	180UH
L903	1-408-609-41	INDUCTOR	33UH

VARIABLE COIL

LV951	1-410-942-11	COIL, VARIABLE

TRANSISTOR

Q001	8-729-100-66	TRANSISTOR 2SC1623
Q002	8-729-100-75	TRANSISTOR 2SA812-M5
Q003	8-729-901-01	TRANSISTOR DTC144EK
Q004	8-729-903-30	TRANSISTOR DTC144TK
Q005	8-729-903-30	TRANSISTOR DTC144TK
Q006	8-729-100-75	TRANSISTOR 2SA812-M5
Q007	8-729-100-75	TRANSISTOR 2SA812-M5
Q008	8-729-901-01	TRANSISTOR DTC144EK
Q009⚠	8-729-104-95	TRANSISTOR 2SB1040A-5
Q010⚠	8-729-104-95	TRANSISTOR 2SB1040A-5
Q011	8-729-104-95	TRANSISTOR 2SB1040A-5
Q012	8-729-100-66	TRANSISTOR 2SC1623
Q013	8-729-100-75	TRANSISTOR 2SA812-M5
Q014	8-729-100-75	TRANSISTOR 2SA812-M5
Q015	8-729-378-84	TRANSISTOR 2SD788
Q016	8-729-199-92	TRANSISTOR 2SD999
Q017	8-729-901-06	TRANSISTOR DTA144EK
Q018	8-729-901-01	TRANSISTOR DTC144EK
Q019	8-729-903-30	TRANSISTOR DTC144TK
Q020	8-729-903-30	TRANSISTOR DTC144TK
Q021	8-729-901-06	TRANSISTOR DTA144EK
Q022	8-729-903-30	TRANSISTOR DTC144TK
Q023	8-729-903-30	TRANSISTOR DTC144TK
Q024	8-729-903-30	TRANSISTOR DTC144TK
Q025	8-729-903-30	TRANSISTOR DTC144TK
Q026	8-729-100-66	TRANSISTOR 2SC1623
Q027	8-729-100-75	TRANSISTOR 2SA812-M5
Q028	8-729-100-66	TRANSISTOR 2SC1623
Q029	8-729-100-66	TRANSISTOR 2SC1623
Q030	8-729-100-75	TRANSISTOR 2SA812-M5
Q031	8-729-100-66	TRANSISTOR 2SC1623
Q032	8-729-100-75	TRANSISTOR 2SA812-M5
Q033	8-729-901-01	TRANSISTOR DTC144EK
Q034	8-729-903-30	TRANSISTOR DTC144TK
Q036	8-729-100-75	TRANSISTOR 2SA812-M5
Q301⚠	8-729-101-07	TRANSISTOR 2SB798
Q302	8-729-901-01	TRANSISTOR DTC144EK
Q303⚠	8-729-101-07	TRANSISTOR 2SB798
Q304	8-729-901-01	TRANSISTOR DTC144EK
Q305	8-729-901-01	TRANSISTOR DTC144EK
Q306	8-729-901-01	TRANSISTOR DTC144EK
Q307	8-729-901-06	TRANSISTOR DTA144EK
Q308	8-729-901-01	TRANSISTOR DTC144EK
Q309	8-729-100-66	TRANSISTOR 2SC1623
Q310	8-729-901-06	TRANSISTOR DTA144EK
Q311	8-729-100-75	TRANSISTOR 2SA812-M5
Q312	8-729-101-07	TRANSISTOR 2SB798
Q313	8-729-901-01	TRANSISTOR DTC144EK
Q314	8-729-901-01	TRANSISTOR DTC144EK
Q315⚠	8-729-102-78	TRANSISTOR 2SB962Z
Q316	8-729-100-75	TRANSISTOR 2SA812-M5
Q317	8-729-901-01	TRANSISTOR DTC144EK
Q318	8-729-100-75	TRANSISTOR 2SA812-M5
Q319	8-729-100-66	TRANSISTOR 2SC1623
Q320	8-729-100-66	TRANSISTOR 2SC1623
Q321	8-729-901-04	TRANSISTOR DTA114EK
Q322	8-729-901-01	TRANSISTOR DTC144EK
Q901	8-729-901-01	TRANSISTOR DTC144EK
Q952	8-729-177-43	TRANSISTOR 2SD774
Q953	8-729-100-66	TRANSISTOR 2SC1623

RESISTOR

R001	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R002	1-216-043-00	METAL GLAZE	560	5%	1/10W
R003	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R004	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R005	1-216-041-00	METAL GLAZE	470	5%	1/10W
R006	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R007	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R008	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R009	1-216-101-00	METAL GLAZE	150K	5%	1/10W
R010	1-216-093-00	METAL GLAZE	68K	5%	1/10W
R011	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R012	1-216-103-00	METAL GLAZE	180K	5%	1/10W

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Ref.No	Part No.	Description				Remark
R013	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R014	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R015	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R016	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R017	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R018	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R019	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R020	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R021	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R022	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R023	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R024	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R025	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R026	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R027	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R028	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R029	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R030	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R031	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R032	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R033	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R034	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R035	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R036	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R037	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R038	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R039	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R040	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R041	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R042	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R043	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R044	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R045 ⚠	1-216-345-11	WIREWOUND	0.47	5%	1W	
R046	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R047	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R048	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R049	1-216-070-00	METAL GLAZE	7.5K	5%	1/10W	
R050	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R051	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R052	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R053	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R054	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R055	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R056	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R057	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R058	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R059	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R060	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R061	1-216-020-00	METAL GLAZE	62	5%	1/10W	
R062	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R063	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R064	1-216-195-00	METAL GLAZE	750	5%	1/8W	
R065	1-216-195-00	METAL GLAZE	750	5%	1/8W	
R066	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R067	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R068	1-216-020-00	METAL GLAZE	62	5%	1/10W	
R069	1-216-195-00	METAL GLAZE	750	5%	1/8W	
R070	1-216-195-00	METAL GLAZE	750	5%	1/8W	
R071	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W	
R072	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W	
R073	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W	
R074	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W	
R075	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W	
R076	1-216-020-00	METAL GLAZE	62	5%	1/10W	
R077	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R078	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R079	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R080	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R081	1-216-108-00	METAL GLAZE	300K	5%	1/10W	
R082	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R083 ⚠	1-217-635-00	WIREWOUND	0.1	5%	1W	
R084	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R085	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R086	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R087	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R088	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R089	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R090	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R091	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R092	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R093	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R094	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R095	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R096	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R097	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R098	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R099	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R100	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R101	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R102	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R103	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R104	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R105	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R106	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R107	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R108	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R109	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R110	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R111	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R112	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R113	1-216-098-00	METAL GLAZE	110K	5%	1/10W	
R114	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R115	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R116	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R117	1-216-060-00	METAL GLAZE	3K	5%	1/10W	
R118	1-216-060-00	METAL GLAZE	3K	5%	1/10W	

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Ref.No	Part No.	Description				Remark
R119	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R120	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R121	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R122	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R123	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R124	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R125	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R126	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R127	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R128	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R129	1-216-072-00	METAL GLAZE	9.1K	5%	1/10W	
R130	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R131	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R132	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R133	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R134	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R135	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R136	1-216-072-00	METAL GLAZE	9.1K	5%	1/10W	
R137	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R138	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R139	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R140	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R141	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R142	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R143	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R144	1-216-080-00	METAL GLAZE	20K	5%	1/10W	
R145	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W	
R146	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R147	1-216-062-00	METAL GLAZE	3.6K	5%	1/10W	
R148	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R149	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R150	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R151	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R152	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R153	1-216-052-00	METAL GLAZE	1.3K	5%	1/10W	
R154	1-216-048-00	METAL GLAZE	910	5%	1/10W	
R155	1-216-072-00	METAL GLAZE	9.1K	5%	1/10W	
R156	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R157	1-216-088-00	METAL GLAZE	43K	5%	1/10W	
R158	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R159	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R160	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R161	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R162 ⚠	1-249-393-11	CARBON	10	5%	1/4W	F
R163	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R164	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R165	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R166	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R168	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R169	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R170	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R301	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R302	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R303	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R304	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R305	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R306	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R307	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R308	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R309	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R310	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R311	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R312	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R313	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R314	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R315	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R316	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R317	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R318	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R319	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R320	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R321	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R322	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R323	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R324	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R325	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R326	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R327	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R328	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R329	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R330	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R331	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R332	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R333	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R334	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R335	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R336	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R337	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R338	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R339	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R340	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R341	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R342	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R343	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R345	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R347	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R348	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R349	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R350	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R351	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R352	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R353	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R354	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R355	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R356	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R358	1-216-083-00	METAL GLAZE	27K	5%	1/10W	

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Ref.No	Part No.	Description				Remark
R359	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R360	1-216-007-00	METAL GLAZE	18	5%	1/10W	
R361	1-216-038-00	METAL GLAZE	360	5%	1/10W	
R362	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R363	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R364	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R365	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R366	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R367	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R368	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R369	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R370	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R371	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R372	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R373	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R374	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R375	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R376	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R377	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R378	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R379	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R380	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R381	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R382	1-216-100-00	METAL GLAZE	130K	5%	1/10W	
R383	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R384	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R385	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R386	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R387	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R388	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R389	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R390	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R391	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R392 ⚠	1-249-393-11	CARBON	10	5%	1/4W	F
R393	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R901	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R902	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R908	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R910	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R912	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R913	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R914	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R915	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R918	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R920	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R921	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R923	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R924	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R926	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R927	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R928	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R929	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R932	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R941	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R942	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R943	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R944	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R947	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R948	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R949	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R951	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R952	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R953	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R955	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R956	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R957 ⚠	1-249-453-11	CARBON	3.3	5%	1/4W	F
		VARIABLE RESISTOR				
RV001	1-230-497-11	RES, ADJ, METAL GLAZE 22K				
RV002	1-230-498-11	RES, ADJ, METAL GLAZE 47K				
RV003	1-230-498-11	RES, ADJ, METAL GLAZE 47K				
RV301	1-230-495-11	RES, ADJ, METAL GLAZE 2.2K				
RV901	1-230-496-11	RES, ADJ, CARBON 10K				
RV951	1-224-663-11	RES, ADJ, METAL FILM 470K				
		RELAY				
RY951	1-515-529-11	RELAY				
		TRANSFORMER				
T951	1-433-330-11	TRANSFORMER, BIAS OSCILLATION				
		THERMISTOR				
TH001	1-800-198-XX	THERMISTOR S-1K				
		CRYSTAL				
X301	1-577-116-21	VIBRATOR, CRYSTAL				
**********						
	*A-6715-412-A	FU-64 BOARD, COMPLETE (Ref. No. 6000 series)				
		**********				
	3-726-139-01	KNOB, MODE SELECTION				
	3-726-164-01	KNOB, TRACK CONTROL				
		CAPACITOR				
C502	1-163-021-00	CERAMIC CHIP 0.01MF			50V	
		CONNECTOR				
CN501	*1-566-544-11	CONNECTOR, FPC (NON ZIF) 12P				
		DIODE				
D501	8-719-970-71	DIODE SLM-125DC-C1				
D502	8-719-970-71	DIODE SLM-125DC-C1				
D503	8-719-946-87	DIODE SLM-125VC				

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When indicating parts by reference number, please include the board name.

FU-64 CN-34 JK-36 JK-35

Ref.No	Part No.	Description	Remark
D504	8-719-946-87	DIODE SLM-125VC	
D505	8-719-946-87	DIODE SLM-125VC	
D506	8-719-970-71	DIODE SLM-125DC-C1	
D507	8-719-946-86	DIODE SLM-125MC	
		IC	
IC501	8-757-991-00	IC CX-7991	
		RESISTOR	
R501	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R502	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R503	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R504	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R505	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R506	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R507	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R508	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R509	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R510	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R511	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R512	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R513	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R514	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R515	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
		VARIABLE RESISTOR	
RV501	1-228-939-00	RES, VAR, CARBON 100K (TRACKING)	
RV502	1-230-874-11	RES, ADJ, METAL GRAZE 100K	
		SWITCH	
S501	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (REW)	
S502	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (STOP)	
S503	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (PAUSE)	
S504	1-571-102-11	SWITCH, SLIDE (EJECT)	
S505	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (FF)	
S506	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (PLAY)	
S507	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (AUDIO INSERT)	
S508	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (EDIT SEARCH +)	
S509	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (REC)	
S510	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (VIDEO INSERT)	
S511	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE) (EDIT SEARCH -)	
S512	1-570-870-11	SWITCH, SLIDE (REC MODE)	

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Ref.No	Part No.	Description	Remark
	*1-627-532-11	CN-34 BOARD (Ref. No. 5000 series) **********	
	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
		CAPACITOR	
C901	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C902	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C903	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C904	1-163-021-00	CERAMIC CHIP 0.01MF	50V
		CONNECTOR	
CN901	*1-564-743-11	PIN, CONNECTOR 13P	
CN902	*1-506-485-11	PIN, CONNECTOR 6P	
CN903	*1-506-490-21	PIN, CONNECTOR 11P	
CN904	1-565-676-11	CONNECTOR (RECEPTACLE) 32P	
		DIODE	
D901	8-719-105-93	DIODE RD5.6M-T1B1	
D901	8-719-105-94	DIODE RD5.6M-T1B2	
D902	8-719-105-93	DIODE RD5.6M-T1B1	
D902	8-719-105-94	DIODE RD5.6M-T1B2	
D903	8-719-105-93	DIODE RD5.6M-T1B1	
D903	8-719-105-94	DIODE RD5.6M-T1B2	
D904	8-719-105-93	DIODE RD5.6M-T1B1	
D904	8-719-105-94	DIODE RD5.6M-T1B2	
D912	8-719-105-93	DIODE RD5.6M-T1B1	
D912	8-719-105-94	DIODE RD5.6M-T1B2	

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	*1-627-531-12	JK-36 BOARD (Ref. No. 8000 series) **********	
	*3-730-724-01	HOLDER, PJ	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
		CAPACITOR	
C851	1-163-012-00	CERAMIC CHIP 0.01MF	50V
		CONNECTOR	
CN851	*1-506-481-11	PIN, CONNECTOR 2P	
CN852	*1-506-483-21	PIN, CONNECTOR 4P	
		DIODE	
D852	8-719-105-90	DIODE RD5.6M-B1	
		JACK	
J851	1-507-846-41	JACK, PIN 3P (OUTPUT)	

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	*1-627-530-11	JK-35 BOARD (Ref. No. 8000 series) **********	
	1-550-104-41	HOLDER, BATTERY	
	1-571-630-11	SWITCH, TOGGLE	
	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
		CAPACITOR	
C804	1-163-021-00	CERAMIC CHIP 0.01MF	50V
C805	1-163-035-00	CERAMIC CHIP 0.047MF	50V

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		CONNECTOR	
CN801	*1-508-797-00	PIN, CONNECTOR 4P	
CN802	*1-508-845-00	PIN, CONNECTOR 6P	
CN803	*1-506-471-11	PIN, CONNECTOR 6P	
CN804	*1-506-470-11	PIN, CONNECTOR 5P	
CN805	*1-506-467-11	PIN, CONNECTOR 2P	
CN806	*1-506-469-11	PIN, CONNECTOR 4P	
		FUSE	
F801	⚠1-532-598-00	FUSE, GLASS TUBE (125V 4A)	
		JACK	
J801	1-507-563-00	JACK, DC (EXT DC IN)	
J802	1-562-732-11	SOCKET 5P (CONTROL L)	
J803	1-507-853-00	JACK (PHONES)	
J804	1-566-849-11	CONNECTOR, (S) TERMINAL 4P (S VIDEO OUT)	
		RESISTOR	
R801	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R802	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
		VARIABLE RESISTOR	
RV801	1-238-266-11	RES, VAR, CARBON 10K	
**********			
	*1-609-071-00	LM-11 BOARD (Ref. No. 7200 series)	
		**********	
		CAPACITOR	
C001	1-161-054-00	CERAMIC 0.018MF 10% 50V	
		COIL	
L001	1-408-120-00	INDUCTOR 18UH	
L002	1-408-120-00	INDUCTOR 18UH	
**********			
	*1-627-536-12	RP-62 BOARD (Ref. No. 6000 series)	
		**********	
		SWITCH	
S401	1-571-081-11	SWITCH (REC PROOF)	
**********			
	*1-627-535-12	ES-14 BOARD (Ref. No. 6000 series)	
		**********	
		SWITCH	
S402	1-571-081-11	SWITCH (ED CASSETTE)	
**********			

Ref.No	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
	A-6708-448-A	MAIN ASSY (DXF-C50), EVF	
	*A-6759-420-A	MOUNTED PCB, LENS	
	A-6761-124-A	HEAD BLOCK ASSY, ACE	
	*A-6771-057-A	CCD BLOCK ASSY	
	⚠1-464-992-21	CONVERTER UNIT, DC-DC	
	1-542-109-11	MICROPHONE, STEREO	
	1-547-281-11	LENSE, ZOOM (VCL-1010BY)	
	1-574-059-11	FFC 12P	
	1-806-230-42	SENSOR, DEW CONDENSATION	
	1-806-633-00	ELEMENT, MAGNETIC RESISTOR	
M902	8-835-333-01	MOTOR, DC BHF-1923A (CAPSTAN)	
CN001	1-574-126-11	CORD, CONNECTION (8P PLUG CORD)	
L901	1-464-246-00	SENSOR, S COIL	
L902	1-464-247-00	SENSOR, T COIL	
L903	⚠1-451-233-00	DEFLECTION YOKE	
M903	8-838-041-01	MOTOR, DC (BHF-1801A) (REEL)	
M1001	1-541-491-21	MOTOR, DC (DNR-6100A) (LOADING)	
PM1001	⚠A-6749-079-A	SOLENOID BLOCK ASSY, PINCH	
Q009	8-729-904-32	TRANSISTOR 2SB1185-E	
S901	1-571-630-11	SWITCH, TOGGLE (POWER)	
S902	1-553-720-00	SWITCH, MICRO (UNLOADING END)	
S903	1-553-720-00	SWITCH, MICRO (LOADING END)	
S904	1-570-771-11	SWITCH (CASSETTE IN)	
V901	⚠1-546-043-11	CATHODE-RAY TUBE (40LB4)	
**********			
		ACCESSORIES AND PACKING MATERIALS	
		**********	
	Part No.	Description	Remark
	*X-3672-208-2	SUSPENSION ASSY (B)	
	X-3726-135-1	ARM ASSY, LIGHT	
	1-162-922-11	CAP, CERAMIC 39PF CH 1608	
	1-551-086-31	CORD, CONNECTION	
	1-551-734-11	CORD, CONNECTION	
	1-558-543-11	CORD, CONNECTION	
	1-559-457-11	CORD, CONNECTION	
	1-566-020-21	PLUG, CONNECTOR 13P	
	3-685-111-11	STRAP (N), SHOULDER	
	*3-726-118-01	LID, JK	
	*3-726-234-01	CUSHION (UPPER)	
	*3-726-235-01	CUSHION (LOWER)	
	3-726-271-01	CAP, WHITE	
	3-786-218-21	MANUAL, INSTRUCTION (ENGLISH) (US/CND MODEL)	
	3-786-218-31	MANUAL, INSTRUCTION (FRENCH) (CND MODEL)	
	3-726-233-11	INDIVIDUAL CARTON	
	8-883-108-92	TAPE L-25CLN (E)	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

HARDWARE LIST

SCREW

7-621-255-20	SCREW +P 2X4
7-621-255-45	SCREW +P 2X6
7-621-255-55	SCREW, TOTSU P 2X8
7-621-259-35	SCREW +P 2.6X5
7-621-284-30	SCREW +P 2.6X8
7-621-559-29	+K 2.6X4
7-621-559-30	SCREW +K 2.6X5
7-621-559-52	SCREW +K 2.6X8
7-621-770-67	SCREW +P 2.6X6
7-621-770-87	SCREW +PTT 2.6X5 (S)
7-621-770-87	SCREW +BVTT 2.6X5 (S)
7-621-772-50	SCREW +B 2X10
7-621-772-58	SCREW +B 2X10
7-621-773-86	SCREW +P 2.6X4
7-621-773-95	SCREW +B 2.6X6
7-621-775-00	SCREW +B 2.6X3
7-621-775-08	SCREW +P 2.6X3
7-621-775-10	SCREW +B 2.6X4
7-621-775-20	SCREW +P 2.6X5
7-621-775-40	SCREW +B 2.6X8
7-621-912-20	SCREW, TOTSU B 2.6X5
7-627-452-28	SCREW, PRECISION +K 2X4
7-627-551-28	SCREW, PRECISION +P 1.4X2.5
7-627-552-58	SCREW, PRECISION +P 1.7X5
7-627-553-28	SCREW, PRECISION +P 2X2.5
7-627-553-68	SCREW, PRECISION +P 2X6
7-627-554-07	SCREW, PRECISION +P 2X2.2
7-628-253-10	SCREW +PS 2X5
7-628-253-30	SCREW +PS 2X8
7-628-253-90	SCREW +PS 2.6X4
7-628-254-00	+PSW, 2.6X5
7-682-149-09	SCREW +P 3X10
7-682-248-09	SCREW +K 3X8
7-682-548-04	SCREW +P 3X8
7-682-548-09	SCREW +B 3X8
7-682-561-09	SCREW +B 4X8
7-682-563-09	SCREW +B 4X12
7-682-647-09	SCREW +PSW 3X6
7-682-653-09	SCREW +PS 3X20
7-682-666-09	SCREW +PS 4X20
7-682-948-01	SCREW +PSW 3X8
7-685-102-19	SCREW +P 2X4 NON-SLIT TYPE 2
7-685-102-19	SCREW +P 2X4 TYPE2 NON-SLIT
7-685-131-19	SCREW +P 2.6X4 TYPE2 NON-SLIT
7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT
7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S
7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT
7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S
7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S

SET-SCREW

7-621-712-36	SET-SCREW, SLOT 2.6X4FLAT POINT
7-621-731-08	SET-SCT, HEX. 2X2.5, FLAT POINT
7-683-174-21	SET-SCREW, SLOT 3X4 CONE POINT

NUT

7-622-207-05	N 2.6, TYPE 2

WASHER

7-623-207-22	SW 2.6, TYPE 2
7-623-927-01	WASHER 6.0, NYLONE

STOP RING

7-624-102-04	STOP RING 1.5, TYPE -E
7-624-105-04	STOP RING 2.3, TYPE -E
7-624-190-81	STOP RING 2, TYPE-CS

SPRING PIN

7-626-317-21	PIN, SPRING 2.5X8

STEEL BALL

7-671-115-01	BALL, STEEL

BOLT

7-683-401-04	BOLT, HEXAGON SOCKET 3X4

TAPPING

7-685-105-19	TPG +P 2X8, TYPE 2, NON-SLIT

WASHER

7-688-001-01	W 2, MIDDLE
7-688-002-12	W 2.6, MIDDLE

SECTION 7
CAMERA BLOCK ADJUSTMENT

During the adjustment, see the parts arrangement diagram relevant to the adjustment on page 236.

7-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA BLOCK)

7-1-1. List of Jigs Required for Servicing

- Oscilloscope
- Regulated power supply (current capacity 4A or more)
- Adjusting screwdriver
- Color monitor
- Vectorscope

Ref. No.	Name	Part No.	Use
J-1	Filter for color temperature compensation (W10)	Commercial available	Auto white balance confirmation
	Filter (C12) (Daylight)		5600K white balance adjustment, 5600K color reproduction adjustment
J-2	ND filter 1.0	J-6080-808-A	LLA adjustment
	ND filter 0.4	J-6080-806-A	Auto iris adjustment, LLA adjustment
	ND filter 0.3	J-6080-818-A	LLA adjustment
	ND filter 0.1	J-6080-807-A	Auto iris adjustment
	ND filter 0.9	J-6080-833-A	Sense gain 9 dB/18 dB adjustment, LLA adjustment
J-3	Pattern box PTB-500 *1	J-6029-140-A	
J-4	Color chart (for pattern box)	J-6020-250-A	
J-5	Gray scale chart (for pattern box)	J-6026-130-A	Y-γ adjustment
J-6	Inmega cycle chart (for pattern box)	J-6021-910-A	H aperture adjustment
J-7	Adjusting remote-control unit	Remodeling RM-94	
J-8	Extension cable (32-pin)	J-6082-017-A	

* 1 PTB-100 (J-6020-490-A) is usable.

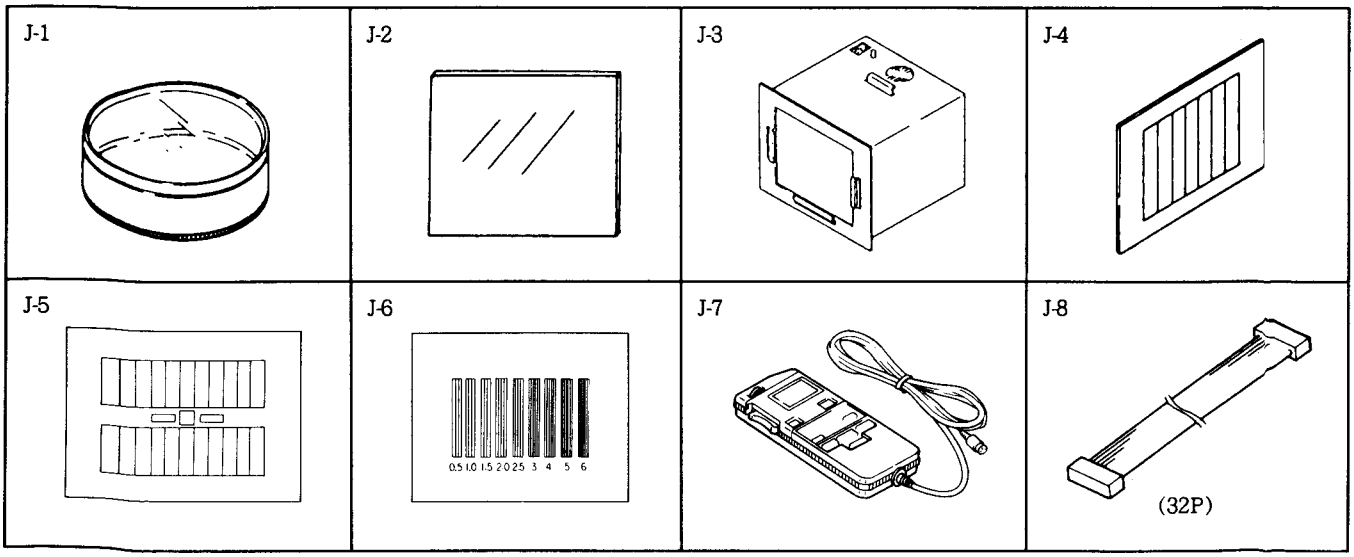


Fig. 7-1.

7-1-2. Preparations

Note : Refer to SECTION 2. DISASSEMBLY for details on cabinet and boards removal.

1) Set the camera block as shown in Fig. 7-2.
2) Connect the camera and video blocks with the extension cable, then connect other devices as shown in Fig. 7-3.

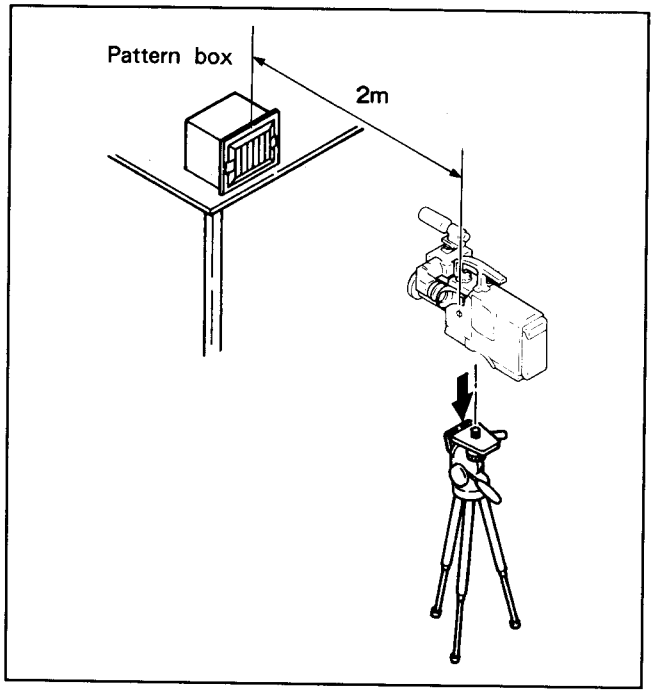


Fig. 7-2.

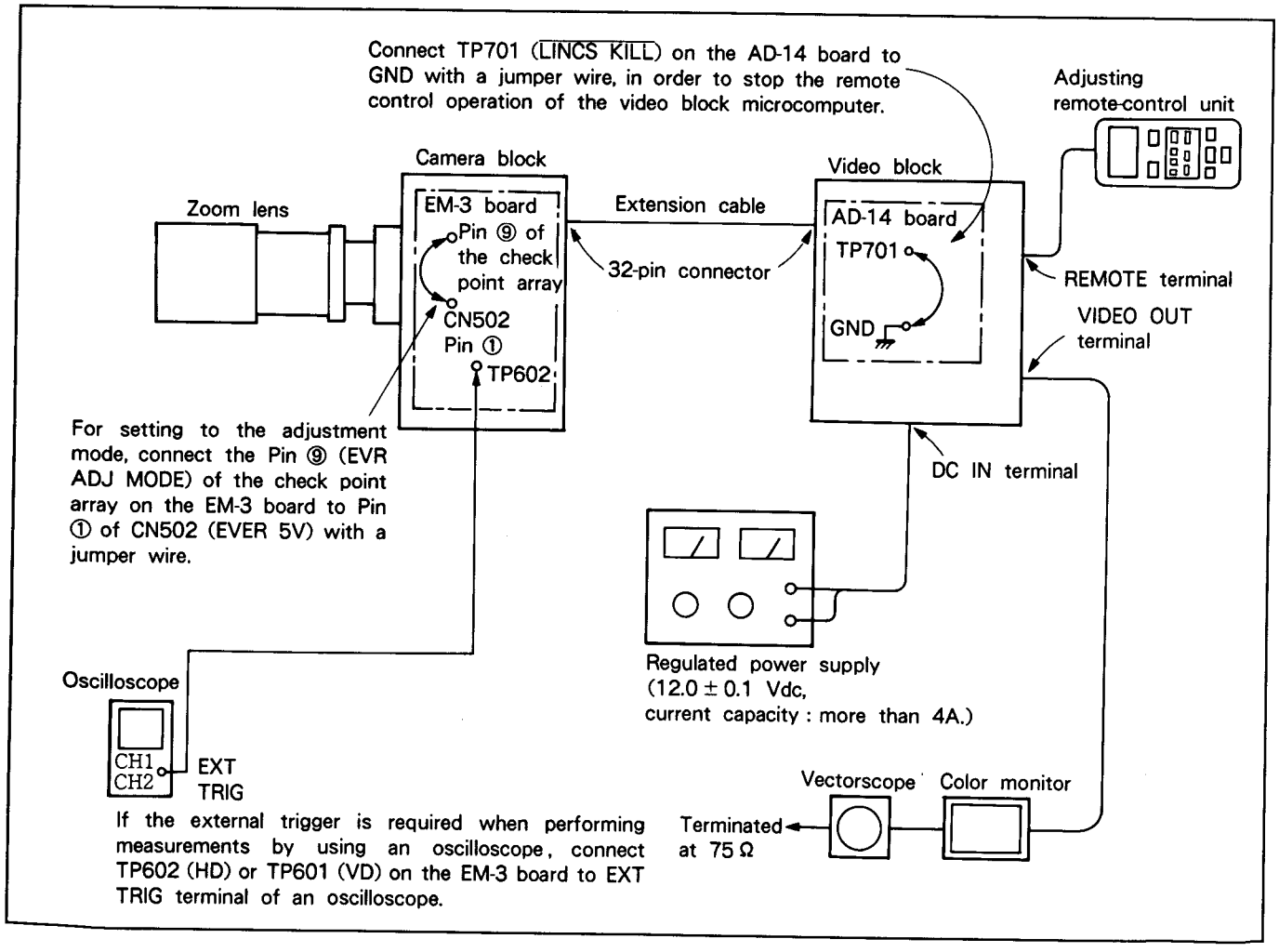

Connect TP701 (LINCS KILL) on the AD-14 board to GND with a jumper wire, in order to stop the remote control operation of the video block microcomputer.
Adjusting remote-control unit
Camera block
Video block
Zoom lens
EM-3 board
Pin ⑨ of the check point array
CN502
Pin ①
TP602
Extension cable
32-pin connector
AD-14 board
TP701
GND
REMOTE terminal
VIDEO OUT terminal
DC IN terminal
For setting to the adjustment mode, connect the Pin ⑨ (EVR ADJ MODE) of the check point array on the EM-3 board to Pin ① of CN502 (EVER 5V) with a jumper wire.
Regulated power supply
(12.0 ± 0.1 Vdc,
current capacity : more than 4A.)
Oscilloscope
CH1
CH2
EXT TRIG
Vectorscope
Color monitor
Terminated at 75 Ω
If the external trigger is required when performing measurements by using an oscilloscope, connect TP602 (HD) or TP601 (VD) on the EM-3 board to EXT TRIG terminal of an oscilloscope.

Fig. 7-3.

7-1-3. Precautions

1) Switch Setting
Before adjusting, set switches to the following positions unless otherwise specified.
• Camera Block
1. CAMERA/VTR power switch
(S904 on the SW-86 board)
·····CAMERA ON/VTR SAVE
2. SHUTTER switch (S925 on the SW-84 board)
·····NORMAL (1/60)
3. WHITE BALANCE switch
(S901 on the SW-86 board)
·····3200K
4. GAIN switch (S912 on the SW-85 board)
·····0 dB
• Zoom Lens
1. Iris mode selector switch·····AUTO

2) Adjusting Order
As a rule, follow the order given in this manual.

3) Subjects
1. Color bar chart (standard picture frame)
When using a color bar chart for adjustment, adjust the picture frame as shown in Fig. 7-4 (standard picture frame).
2. Totally white pattern
Remove the color bar chart from the pattern box.
3. Gray scale chart
After adjusting picture frame using color bar chart, set the gray scale chart on it.
4. Inmega cycle chart
After adjusting picture frame using color bar chart, set the Inmega cycle chart on it.

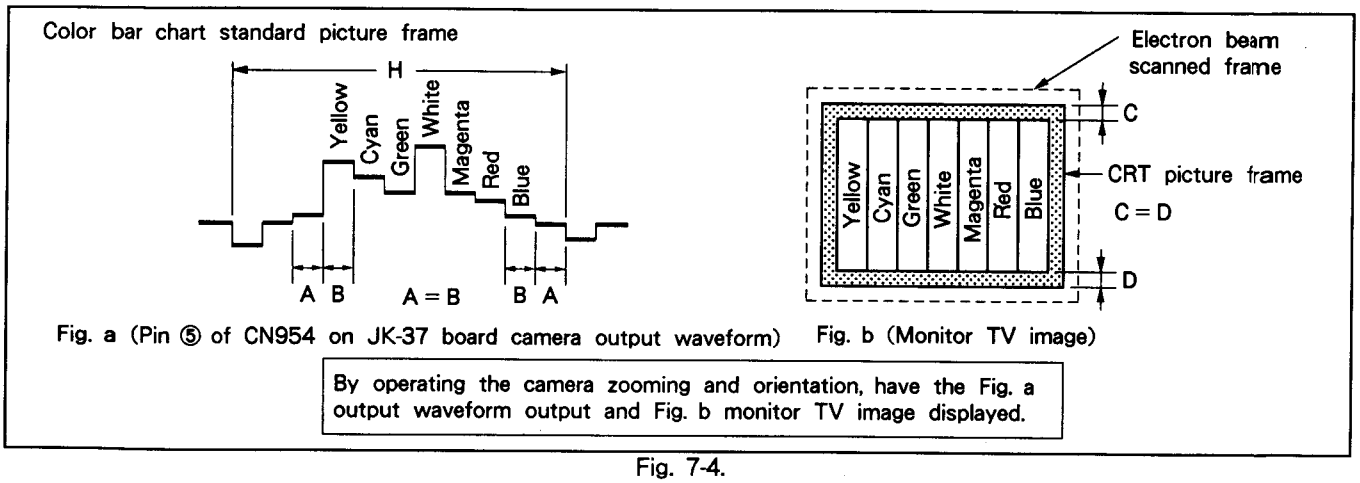


Fig. a (Pin ⑤ of CN954 on JK-37 board camera output waveform) Fig. b (Monitor TV image)

By operating the camera zooming and orientation, have the Fig. a output waveform output and Fig. b monitor TV image displayed.

Fig. 7-4.

5. High luminance pattern
Prepare the high luminance pattern as shown in Fig. 7-5, and adjust picture frame as shown in Fig. 7-6.

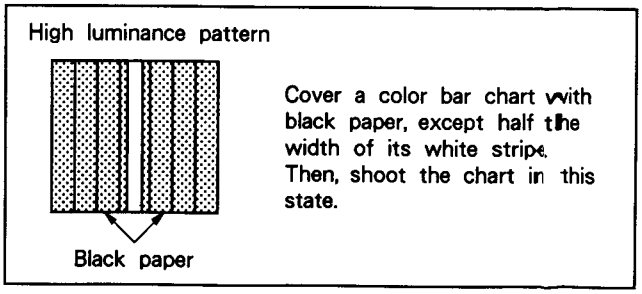

High luminance pattern
Cover a color bar chart with black paper, except half the width of its white stripe. Then, shoot the chart in this state.
Black paper

Fig. 7-5.

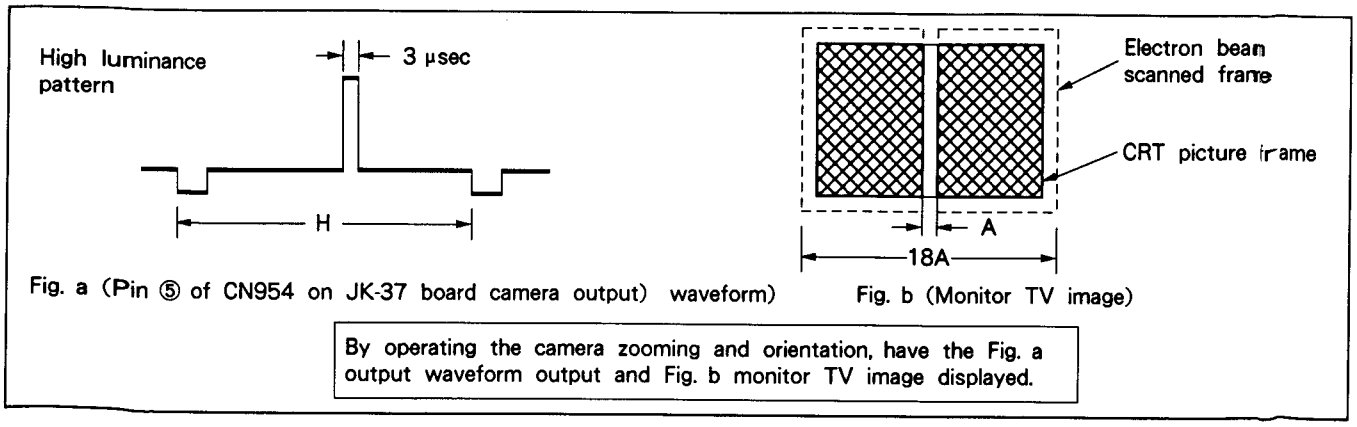


Fig. a (Pin ⑤ of CN954 on JK-37 board camera output) waveform) Fig. b (Monitor TV image)

By operating the camera zooming and orientation, have the Fig. a output waveform output and Fig. b monitor TV image displayed.

Fig. 7-6.

7-1-4. The Adjusting Remote-control Unit

The conventional semi-fixed resistors used so far as adjusting elements for the camera block have been replaced by EVR (Electronic Variable Resistors). These EVRs are controlled by the camera block microcomputer (IC601 on the EM-3 board), which reads data stored in the nonvolatile memory (IC602 on the EM-3 board) and sends them to the EVR. The EVR converts this data (8 bits for each adjusting point) from digital to analog, thus determining the adjustment voltages. Therefore, adjustment data stored in the nonvolatile memory must be rewritten in order to adjust the camera block. This is accomplished by using the adjusting remote-control unit.
The adjusting remote-control unit uses a remote-control transmission cable (LINCS) to perform two-way data transfer with the camera block microcomputer. Adjustment addresses and adjustment data up/down commands are transmitted from the adjusting remote-control unit to the camera block microcomputer. This microcomputer sends adjustment addresses and adjustment data to the adjusting remote-control unit.

1. How to use the adjusting remote-control unit

1) Perform the following connections before turning the power ON.
   1. Connect TP701 ($\overline{\text{LINCS KILL}}$) on the AD-14 board of the video block to GND with a jumper wire (this will disable remote-control operation of the video block microcomputer, leaving the remote-control transmission cable (LINCS) available for data transfer between the adjusting remote-control unit and the camera block microcomputer).
   2. Connect Pin ⑨ (EVR ADJ MODE) of the check point array on the EM-3 board of the camera block with Pin ① (EVER 5V) of CN502 with a jumper wire (this connection will set the camera block microcomputer to the adjustment mode, enabling data transfer between the adjusting remote-control unit and the camera block microcomputer).
   3. Connect the camera block with the video block with the 32-pin connector.
   4. Connect the adjusting remote-control unit to the video block REMOTE terminal.

2) Turn power ON.
   Supply 12.0 ± 0.1 Vdc power to the video block DC IN terminal from the regulated power supply, and set the camera block CAMERA/VTR power switch to the "CAMERA ON/VTR SAVE" position.
   If connections are OK, the indication below will appear on the adjusting remote-control unit LCD (adjustment data will differ according to the connected unit).

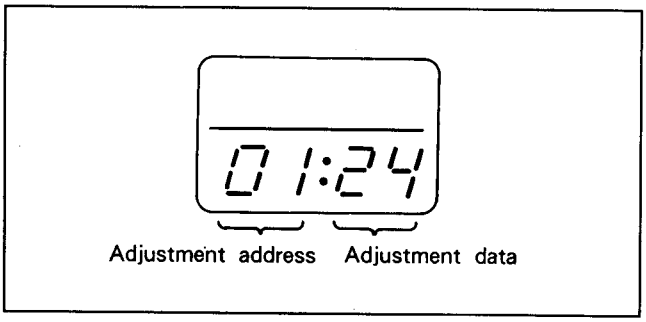


Fig. 7-7.

3) Enter the desired adjustment address with the adjusting remote-control unit.
   Press the FF (▸▸) button to increase the adjustment address reading.
   Press the REW (◂◂) button to decrease the adjustment address reading.
   (Adjustment addresses are displayed in decimal figures. There are 31 of them, from 01 to 31, corresponding to each output terminal of the EVRs (IC505 on the EM-3 board and IC403 on the TP-47 board). Refer to Table 7-3. for the adjustment items related to each address).

Note : Adjustment can be possible by using the adjusting remote-control unit that has been modified to the RM-95.
Because the type of plug is different, be sure to use the conversion cord when the modified remote-control unit is connected to the camera block.
At this time, the display positions of the adjustment address and adjustment data are reversed, however, the function of buttons on the remote-control unit are the same.

4) Adjust by increasing or decreasing adjustment data.
Press the PLAY (►) button to increase the adjustment data reading.
Press the STOP (■) button to decrease the adjustment data reading.
- Adjustment data are displayed in hexadecimal figures, taking 256 different values from 00 to FF.

Hexadecimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal Converted Value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

- Adjustment data correspond to the EVRs (IC505 on the EM-3 board and IC403 on the TP-47 board) output voltages as follows :

Adjustment Data The value in ( ) shows the decimal converted value.	EVR Output Voltage
FF (= 255)	Maximum (approx. 5 Vdc)
F0 (= 240)	
E0 (= 224)	
D0 (= 208)	
C0 (= 192)	
B0 (= 176)	
A0 (= 160)	
90 (= 144)	
80 (= 128)	Middle (approx. 3.4 Vdc)
70 (= 112)	
60 (= 96)	
50 (= 80)	
40 (= 64)	
30 (= 48)	
20 (= 32)	
10 (= 16)	
00 (= 0)	Minimum (approx. 1.7 Vdc)

Table 7-2.

5) Change the adjustment address with the FF (►►) or REW (◄◄) button in order to store the adjustment data into the nonvolatile memory (IC602 on the TP-47 board) (the new adjustment data will not stored if this step is omitted).

2. Note on adjusting remote-control unit usage
Correct adjustment data might be erased by misoperation of the adjusting remote-control unit. To prevent this, it is advisable to write down all adjustment data before starting, and to take note of the new adjustment data upon completing adjustment of each item.

3. Table of adjustment addresses

Adjustment Address	Adjustment Voltage Output Pin	Adjustment Item		Remarks	Adjustment Data Memo
01	Pin ⑱ of IC403 on TP-47 board	SENS GAIN Y	0dB	Three adjustment data according to position of GAIN switch (SW - 85 board S912)	
			9dB		
			18dB		
02	Pin ⑲ of IC403 on TP-47 board	SENS GAIN C	0dB		
			9dB		
			18dB		
03	Pin ② of IC403 on TP-47 board	C LEVEL		Not used	
04	Pin ③ of IC403 on TP-47 board	R GAIN			
05	Pin ④ of IC403 on TP-47 board	B GAIN			
06	Pin ⑤ of IC403 on TP-47 board	R-Y GAIN	3200K	Two adjustment data according to position of WHITE BALANCE switch (SW-85 board S901)	
			5600K		
07	Pin ⑥ of IC403 on TP-47 board	B-Y GAIN	3200K		
			5600K		
08	Pin ⑦ of IC403 on TP-47 board	R-Y HUE	3200K		
			5600K		
09	Pin ⑧ of IC403 on TP-47 board	B-Y HUE	3200K		
			5600K		
10	Pin ⑨ of IC403 on TP-47 board	AGC		Not used	
11	Pin ⑫ of IC403 on TP-47 board	LLA			
12	Pin ⑬ of IC403 on TP-47 board	Y-γ CONT			
13	Pin ⑱ of IC505 on EM-3 board	BURST HUE		Not used	
14	Pin ⑲ of IC505 on EM-3 board	BURST LEVEL			
15	Pin ② of IC505 on EM-3 board	Y1 GAIN			
16	Pin ③ of IC505 on EM-3 board	V.APA CONT			
17	Pin ④ of IC505 on EM-3 board	SYNC LEVEL			
18	Pin ⑤ of IC505 on EM-3 board	SET UP			
19	Pin ⑥ of IC505 on EM-3 board	Y LEVEL			

Table 7-3. (1)

Adjustment Address	Adjustment Voltage Output Pin	Adjustment Item		Remarks	Adjustmet Data Memo
20	Pin ⑦ of IC505 on EM-3 board	SHP LEVEL	0dB	Three adjustment data according to position of GAIN switch (SW - 85 board S912)	
			9dB		
			18dB		
21	Pin ⑧ of IC505 on EM-3 board	WHITE CLIP			
22	Pin ⑨ of IC505 on EM-3 board	IRIS			
23	Pin ⑱ of IC601 on EM-3 board	R CONT 5600K			
24	Pin ⑲ of IC601 on EM-3 board	B CONT 5600K			
25		(WND V START)		Adjustment data are fixed in "FF".	
26		(WND V)			
27		(WND H START)		Adjustment data are fixed in "33".	
28		(WND H)		Adjustment data are fixed in "7D".	
29		(TIME COUNTER)		Adjustment data are fixed in "00".	
30		(TIME COUNTER)			
31		(TIME COUNTER)			

Table 7-3. (2)

7-1-5. The Check Point Array

Almost all measurement points for adjustment of the camera block are clustered in the check point array on the EM-3 board. Solder short lead wires to the terminals required for adjustment and connect them to an oscilloscope. Table 7-4. shows check point array terminal numbers and the corresponding signal names.

Pin No.	Signal Name
1	DTL OUT
2	$\overline{\text{VAP}}$ OUT
3	IRIS OUT
4	Y-γ IN
5	$\overline{\text{DET C}}$
6	YH
7	G DET
8	AWB ADJ MODE
9	E-VR ADJ MODE
10	GND
11	

Table 7-4.

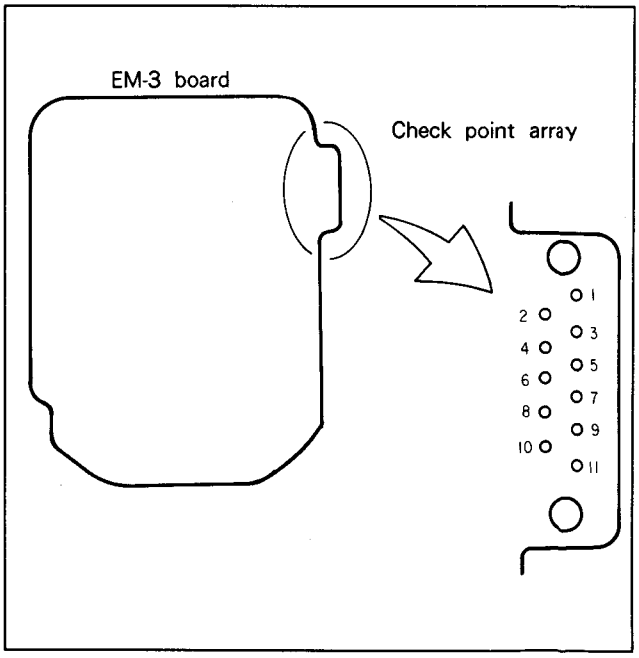


Fig. 7-8.

7-2. CAMERA BLOCK ADJUSTMENT

7-2-1. Power-supply Check (DC-DC Converter CD101)

Measuring Instrument	Digital voltmeter
EVER 5V Check	
Measurement Point	Pin ① of CN002
Specified Value	5.0 ± 0.1 Vdc
SWD 5V Check	
Measurement Point	Pin ① of CN003
Specified Value	5.0 ± 0.1 Vdc
6.6V Check	
Measurement Point	Pin ② of CN003
Specified Value	6.6 ± 0.2 Vdc
15V Check	
Measurement Point	Pin ③ of CN003
Specified Value	15.0 ± 0.2 Vdc
27V Check	
Measurement Point	Pin ④ of CN003
Specified Value	$27\ ^{+2.0}_{-0.1}$ Vdc

7-2-2. VSUB Voltage Adjustment (DT-72/TP-47 Boards)

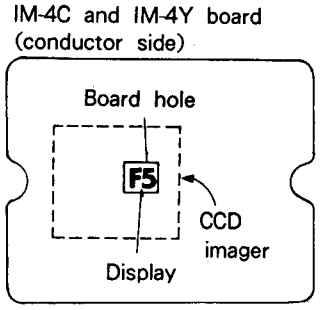
Subject	Not used
Measuring Instrument	Digital voltmeter
VSUB C voltage adjustment	
Measurement Point	Pin ⑧ (TP202) of CN202 on TP-47 board
Adjusting Element	RV101 on DT-72 board
Specified Value	(Voltage indicated chroma imager) ± 0.05 Vdc
VSUB Y voltage adjustment	
Measurement Point	Pin ⑧ (TP203) of CN204 on TP-47 board
Adjusting Element	RV102 on DT-72 board
Specified Value	(Voltage indicated Y imager) ± 0.05 Vdc

Adjusting method :

1) Confirm that the SHUTTER switch (S925 on the SW-84 board) is in the NORMAL (1/60) position.
2) Set VSUB C voltage to the value below with RV101 on the DT-72 board.
   [voltage inscribed on the chroma imager (IC051 on the IM-4C board)] ± 0.05 Vdc
3) Set VSUB Y voltage to the value below with RV102 on the DT-72 board.
   [voltage inscribed on the Y imager (IC001 on the IM-4Y board)] ± 0.05 Vdc

Note : VSUB standard voltage is shown by two digits of "Integral abbreviation" and "Decimal value" to the imager.

Integral abbreviation	Integral value
1	1
⋮	⋮
9	9
A	10
B	11
C	12
D	13
E	14
F	15
G	16
H	17
I	18
J	19
K	20
L	21



(Ex.) When "F5" is displayed,
Integral value : F → 15
Decimal value : 5 → 0.5
So, VSUB voltage is as follows.
15 + 0.5 = 15.5 (Vdc)

Fig. 7-9.

7-2-3. Initializing the EVR

The EVR should be initialized with proper adjustment data only in case the nonvolatile memory (IC602 on the EM-3 board) has been replaced.

Adjustment Address	Initial value of adj. data	Adjustment Address	Initial value of adj. data	Adjustment Address	Initial value of adj. data
01 (SENS GAIN Y)	25	11 (LLA)	60	21 (WHITE CLIP)	80
02 (SENS GAIN C)	25	12 (Y-γ CONT)	45	22 (IRIS)	BA
03 (C LEVEL)	00	13 (BURST HUE)	00	23 (R5600)	2A
04 (R GAIN)	90	14 (BURST LEVEL)	7A	24 (B5600)	4A
05 (B GAIN)	4A	15 (Y1 GAIN)	70	25 (WND V START)	FF
06 (R-Y GAIN)	B5	16 (V.APA CONT)	9A	26 (WND V)	FF
07 (B-Y GAIN)	90	17 (SYNC LEVEL)	6A	27 (WND H START)	33
08 (R-Y HUE)	B0	18 (SET UP)	50	28 (WND H)	7D
09 (B-Y HUE)	A0	19 (Y LEVEL)	40	29 (TIME COUNTER)	00
10 (AGC)	00	20 (SHP LEVEL)	45	30 (TIME COUNTER)	00
				31 (TIME COUNTER)	00

Table 7-5.

Adjusting method :

1) Confirm that the GAIN switch (S912 on the SW-85 board) is in the 0 dB position, and that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 3200K position.
2) Set adjustment data at each adjustment address to the default values with the adjusting remote-control unit.
3) Change the adjustment address in order to store the last adjustment data.

7-2-4. Auto-iris Adjustment (EM-3 Board)

Subject	Color bar chart standard picture frame
Filter	0.4 and 0.1 ND filters
Measurement Point	Pin ③ of the check point array (IRIS OUT)
Measuring Instrument	Oscilloscope
Adjustment Address	22 (IRIS)
Specified Value	240 ± 5 mVp-p

Adjusting method :

1) Set adjustment address 22 with the adjusting remote-control unit.
2) With the ND filter detached, change adjustment data using the adjusting remote-control unit. Set IRIS OUT signal level to 240 ± 5 mVp-p.
3) Attach the 0.5 (0.4 + 0.1) ND filter to the front of the lens and confirm that signal level changes smoothly.
4) Remove the ND filter and confirm that signal level remains at 240 ± 10 mVp-p.
5) In case the specification is not fulfilled, repeat steps 2) to 4).
6) Change the adjustment address in order to store the adjustment data.

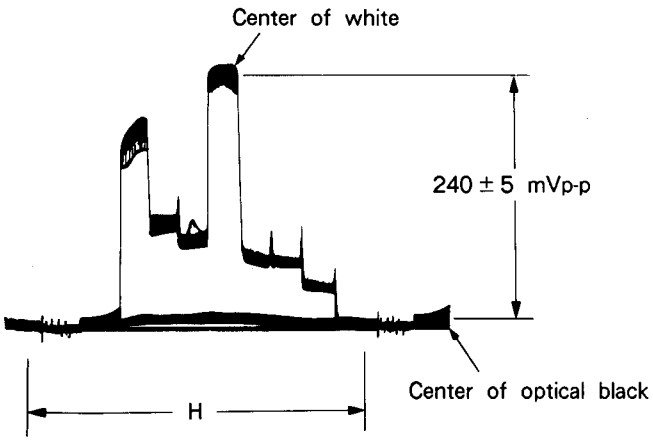


Fig. 7-10.

7-2-5. Y-signal System Adjustment

Before proceeding with Y-signal system adjustment, confirm that the auto iris has been properly adjusted.

1. Initializing

Always set adjustment data as follows before adjusting the Y-signal system.

Adjustment address	Adjustment data
12 (Y-γ)	45
21 (WHITE CLIP)	80

Table 7-6.

Setting method :

1) Set the adjustment address 12 with the adjusting remote-control unit.
2) Set adjustment data to 45.
3) Set the adjustment address 21.
4) Set adjustment data to 80.
5) Change the adjustment address in order to store the last adjustment data.

Note : Be sure to perform white clip and Y-γ adjustment towards the end of Y-signal system adjustment.

2. Y sensitivity gain adjustment (EM-3 board)

Preparation :

1) Set the zoom lens iris mode selector switch to the MANUAL position.
2) Rotate the zoom lens aperture ring so that IRIS OUT signal level (Pin ③ of the check point array) becomes 240 ± 5 mVp-p. (see Fig. 7-10.)

Note : Return the zoom lens iris mode selector switch to the AUTO position after this adjustment. Also return the GAIN switch to the 0 dB position.

(1) Y sensitivity gain 0 dB adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Pin ④ of check point array (Y-γ IN)
Measuring Instrument	Oscilloscope
Adjustment Address	01 (SENS GAIN Y)
Specified Value	650 ± 20 mVp-p

Adjusting method :

1) Set the GAIN switch (S912 on the SW-85 board) to 0 dB.
2) Set adjustment address 01 with the adjusting remote-control unit.
3) Change adjustment data with the adjusting remote-control unit, setting Y-γ signal level to 650 ± 20 mVp-p.
4) Change the adjustment address in order to store the adjustment data.

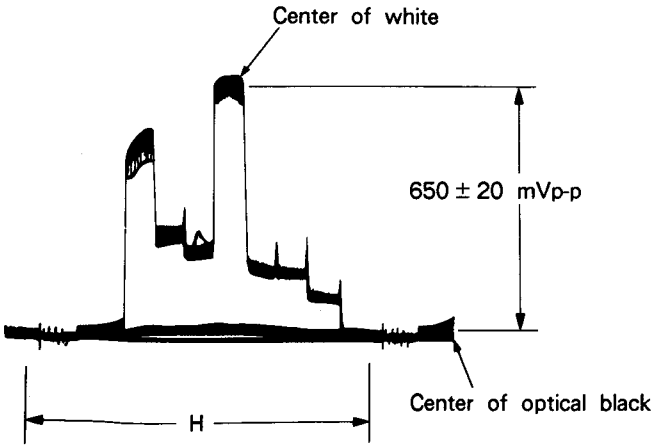


Fig. 7-11.

(2) Y sensitivity gain 9 dB adjustment

Subject	Color bar chart standard picture frame
Filter	0.9 ND filter
Measurement Point	Pin ④ of check point array (Y-γ IN)
Measuring Instrument	Oscilloscope
Adjustment Address	01 (SENS GAIN Y)
Specified Value	240 ± 10 mVp-p

Adjusting method :

1) Attach a 0.9 ND filter to the zoom lens.
2) Set the GAIN switch (S912 on the SW-85 board) to 9 dB.
3) Set adjustment address 01 with the adjusting remote-control unit.
4) Change adjustment data with the adjusting remote-control unit, setting Y-γ signal level to 240 ± 10 mVp-p.
5) Change the adjustment address in order to store the adjustment data.

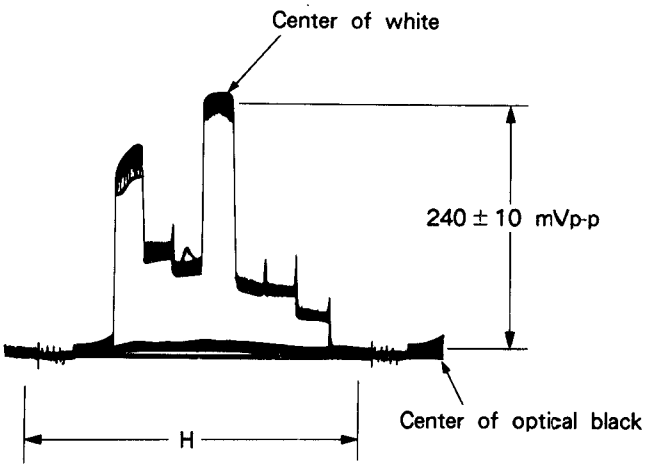


Fig. 7-12.

(3) Y sensitivity gain 18 dB adjustment

Subject	Color bar chart standard picture frame
Filter	0.9 ND filter
Measurement Point	Pin ④ of check point array (Y-γ IN)
Measuring Instrument	Oscilloscope
Adjustment Address	01 (SENS GAIN Y)
Specified Value	650 ± 20 mVp-p

Adjusting method :

1) Attach a 0.9 ND filter to the zoom lens.
2) Set the GAIN switch (S912 on the SW-85 board) to 18 dB.
3) Set adjustment address 01 with the adjusting remote-control unit.
4) Change adjustment data with the adjusting remote-control unit, setting Y-γ signal level to 650 ± 20 mVp-p.
5) Change the adjustment address in order to store the adjustment data.

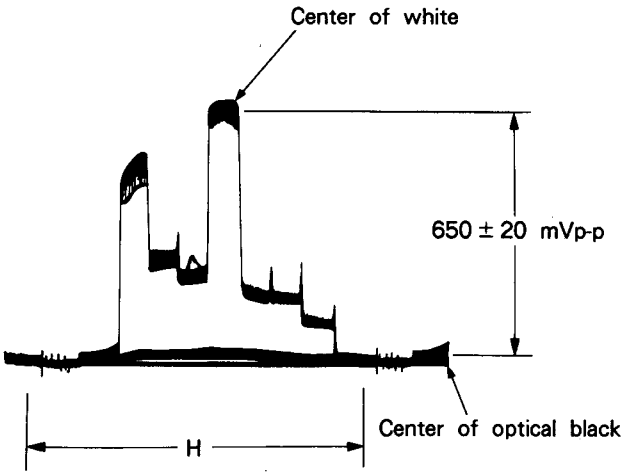


Fig. 7-13.

3. Y1 gain adjustment (EM-3 board)

Subject	All white pattern
Measurement Point	Pin ① of check point array (DTL OUT)
Measuring Instrument	Oscilloscope
Adjustment Address	15 (Y1 GAIN)
Specified Value	0 ± 5 mV

Adjusting method :

1) Set adjustment address 15 with the adjusting remote-control unit.
2) Change adjustment data with the adjusting remote-control unit so as to minimize the level difference between the white section and the optical black section.
3) Change the adjustment address in order to store the adjustment data.

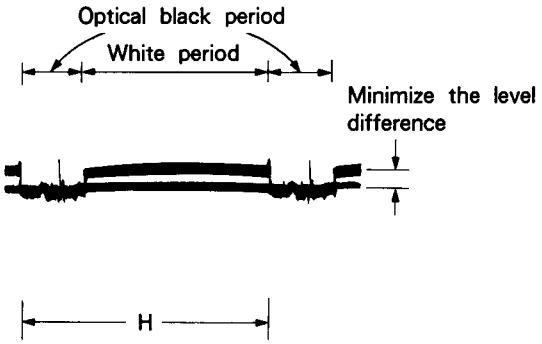


Fig. 7-14.

4. V aperture adjustment (EM-3 board)

Subject	All white pattern
Measurement Point	Pin ② of check point array ($\overline{VAP}$ OUT)
Measuring Instrument	Oscilloscope
Adjustment Address	16 (V APA CONT)
Specified Value	90 ± 5 mV

Adjusting method :

1) Set the oscilloscope to the V period (TIME/DIV = 5 ms/div).
2) Rotate the zoom lens focus ring so as to maximize the waveform peaks.
3) Set adjustment address 16 with the adjusting remote-control unit.
4) Change adjustment data with the adjusting remote-control unit, setting vertical aperture level to 90 ± 5 mV.
5) Change the adjustment address in order to store the adjustment data.

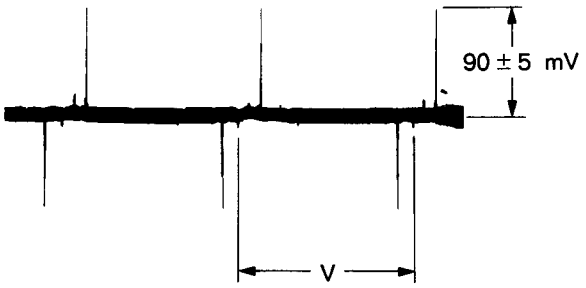


Fig. 7-15.

5. Sync level adjustment (JK-37 board)

Subject	All black (Cover the lens with the black cap)
Measurement Point	Pin (14B) of CN951 (Y OUT) or Pin ⑤ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	17 (SYNC LEVEL)
Specified Value	285 ± 5 mVp-p

Note : Make sure that the video block is connected to the 32-pin connector or that Pin (14B) of the 32-pin connector is terminated at 75 Ω.

Adjusting method :

1) Set adjustment address 17 with the adjusting remote-control unit.
2) Change adjustment data with the adjusting remote-control unit, setting sync level to 285 ± 5 mVp-p.
3) Change the adjustment address in order to store the adjustment data.

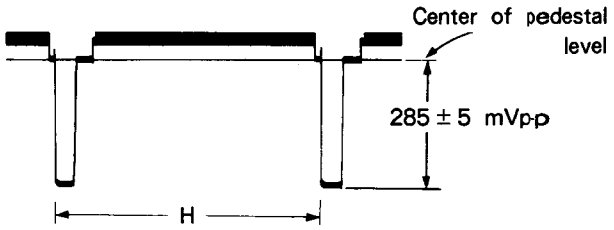


Fig. 7-16.

6. Setup adjustment (JK-37 board)

Subject	All black (Cover the lens with the black cap)
Measurement Point	Pin (14B) of CN951 (Y OUT) or Pin ⑤ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	18 (SET UP)
Specified Value	35 ± 5mV

Note : Make sure that the video block is connected to the 32-pin connector or that Pin (14B) of the 32-pin connector is terminated at 75 Ω.

Adjusting method :

1) Set adjustment address 18 with the adjusting remote-control unit.
2) Change adjustment data with the adjusting remote-control unit, setting setup level to 35 ± 5 mV.
3) Change the adjustment address in order to store the adjustment data.

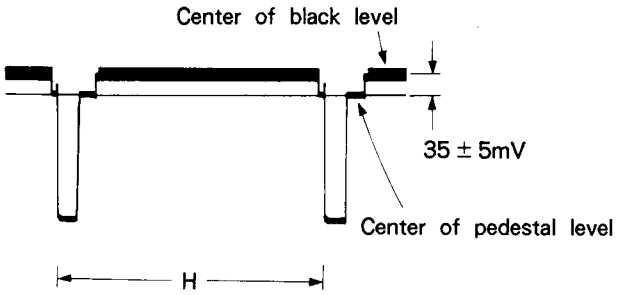


Fig. 7-17.

7. Y level adjustment (JK-37 board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (14B) of CN951 (Y OUT) or Pin ⑤ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	19 (Y LEVEL)
Specified Value	715 ± 10mV

Note : Make sure that the video block is connected to the 32-pin connector or Pin (14B) of the 32-pin connector is terminated at 75 Ω.

Adjusting method :

1) Set adjustment address 19 with the adjusting remote-control unit.
2) Change adjustment data with the adjusting remote-control unit, setting Y signal level to 715 ± 10 mV.
3) Change the adjustment address in order to store the adjustment data.

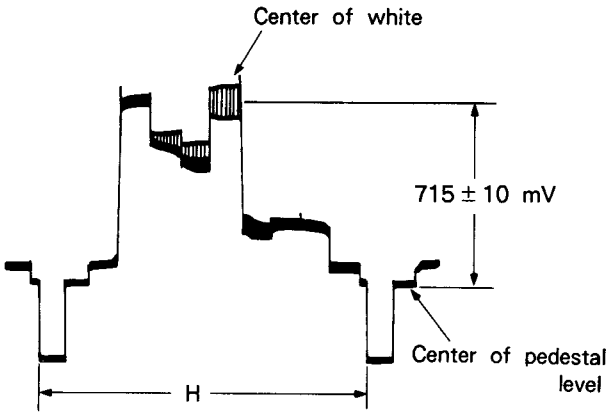


Fig. 7-18.

8. H aperture adjustment (JK-37 board)

(1) H aperture 0 dB adjustment

Subject	Inmega cycle chart standard picture frame
Measurement Point	Pin (14B) of CN951 (Y OUT) or Pin ⑤ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	20 (SHP LEVEL)
Specified Value	90 ± 5 mV

Notes : 1) Make sure that the video block is connected to the 32-pin connector or that Pin (14B) of the 32-pin connector is terminated at 75 Ω.
2) Confirm that the GAIN switch (S912 on the SW-85 board) is set to the 0 dB position.

Adjusting method :

1) Set the zoom lens iris mode selector switch to the MANUAL position.
2) Rotate the zoom lens aperture ring so that amplitude of the Y signal 500 kHz section becomes 500 ± 10 mVp-p.
3) Rotate the zoom lens focus ring so as to maximize the amplitude of the Y signal 3 MHz section.
4) Set adjustment address 20 with the adjusting remote-control unit.
5) Change adjustment data with the adjusting remote-control unit so that level difference between the upper edge of the Y signal 500 kHz section (excluding waveform peaks) and the upper peaks of the 3 MHz section becomes 90 ± 5 mV.
6) Change the adjustment address in order to store the adjustment data.
7) Return the zoom lens iris mode selector switch to the AUTO position.

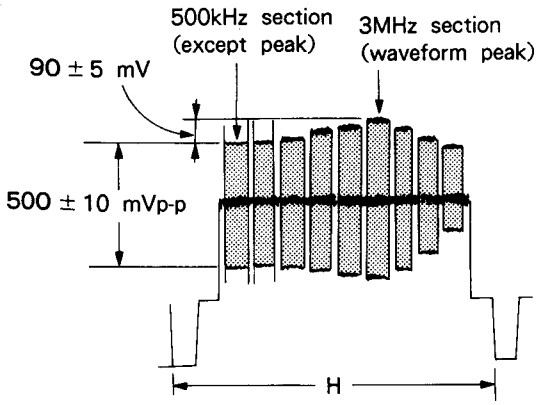


Fig. 7-19.

(2) H aperture 9 dB and 18 dB adjustment

Adjustment Address	20 (SHP LEVEL)
Specified Value	9 dB : (Adjustment data of gain 0 dB) − 4 18 dB : (Adjustment data of gain 0 dB) − 8

Note : The adjustment value for H aperture (18 dB) is given in [ ].

Adjusting method :

1) Set adjustment address 20 with the adjusting remote-control unit.
2) Confirm that the GAIN switch (S912 on the SW-85 board) is set to the 0 dB position and read out the adjustment (0 dB gain) data.
3) Set the GAIN switch to 9 dB [18 dB].
4) Change adjustment data with the adjusting remote-control unit, setting it to the same value used for 0 dB gain adjustment.
5) Press the adjusting remote-control unit stop (■) button lightly 4 [8] times to decrease adjustment data by − 4 [− 8].
6) Change the adjustment address in order to store the adjustment data.
7) Return the GAIN switch to the 0 dB position.

9. White clip adjustment (JK-37 board)

Subject	High luminance pattern
Measurement Point	Pin (14B) of CN951 (Y OUT) or Pin ⑤ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	21 (WHITE CLIP)
Specified Value	800 ± 20 mV

Note : Make sure that the video block is connected to the 32-pin connector or that Pin (14B) of the 32-pin connector is terminated at 75 Ω.

Adjusting method :

1) Set adjustment address 21 with the adjusting remote-control unit.
2) Change adjustment data with the adjusting remote-control unit, setting white clip level to 800 ± 20 mV.
3) Change the adjustment address in order to store the adjustment data.

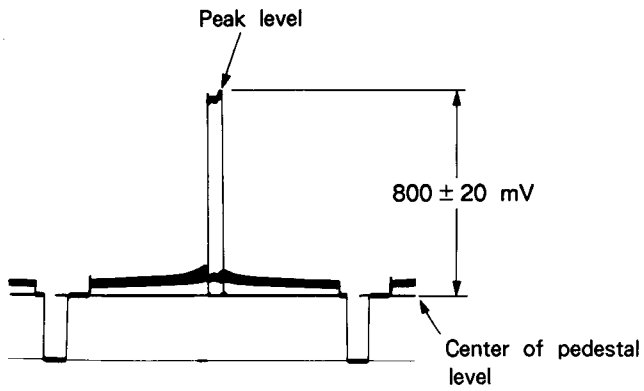


Fig. 7-20.

10. Y-γ Adjustment (JK-37 board)

Subject	Gray scale chart standard picture frame
Measurement Point	Pin (14B) of CN951 (Y OUT) or Pin ⑤ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	12 (Y-γ CONT)
Specified Value	305 ± 15 mV

Note : Make sure that the video block is connected to the 32-pin connector or Pin (14B) of the 32-pin connector is terminated at 75 Ω.

Adjusting method :

1) Set the GAIN switch (S912 on the SW-85 board) to 9 dB.
2) Set the zoom lens iris mode selector switch to the MANUAL position.
3) Rotate the zoom lens aperture ring so that white level on the gray scale becomes 710 ± 10 mV.
4) Set adjustment address 12 with the adjusting remote-control unit.
5) Change adjustment data with the adjusting remote-control unit so that level of the gray section on the periphery of the gray scale becomes 305 ± 15 mV.
6) Change the adjustment address in order to store the adjustment data.
7) Return the GAIN switch to the 0 dB position.
8) Return the zoom lens iris mode selector switch to the AUTO position.

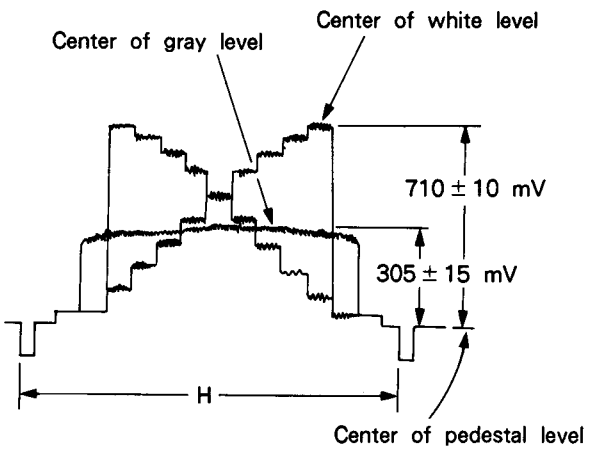


Fig. 7-21.

11. LLA adjustment (EM-3 board)

Subject	Color bar chart standard picture frame
Filter	1.0, 0.9, 0.4 and 0.3 ND filters
Measurement Point	Pin ⑤ of CN505 (LLA LED)
Measuring Instrument	Oscilloscope (DC range)
Adjustment Address	11 (LLA)
Specified Value	"H" is for 1.4 ND filter "L" is for 1.2 ND filter

Adjusting method :

1) Set the zoom lens iris mode selector switch to the MANUAL position.
2) Set the zoom lens aperture ring to the open (F = 1.6) position.
3) Attach a 1.4 (1.0 + 0.4) ND filter to the zoom lens.
4) Set adjustment address 11 with the adjusting remote-control unit.
5) Decrease adjustment data with the adjusting remote-control unit until level of the LLA LED signal becomes low (0 Vdc).
6) Increase adjustment data gradually with the adjusting remote-control unit until level of the LLA LED signal becomes high (approx. 2 Vdc with the EVF connected, and approx. 5 Vdc with the EVF removed).
7) Remove the 1.4 ND filter and confirm that LLA LED signal level becomes low.
8) Attach a 1.2 (0.9 + 0.3) ND filter to the zoom lens.
9) Confirm that LLA LED signal level remains low. If level becomes high, repeat steps 5 to 9.
10) Change the adjustment address in order to store the adjustment data.
11) Return the zoom lens iris mode selector switch to the AUTO position.

7-2-6. Chroma Signal System Adjustment

Before starting this adjustment, confirm that auto iris has been properly adjusted.
Two adjustment methods, using the vectorscope and the oscilloscope respectively, have been included for some adjustment items . However , product specifications might not be satisfied if the oscilloscope is used, so the vectorscope method must be used as far as possible for these items.

1. C sensitivity gain adjustment (EM-3 board)

Preparation :

1) Connect Pin ⑤ ($\overline{\text{DET C}}$) of the check point array to GND with a jumper wire, setting the C DET mode. Detach this jumper wire after adjustment.
2) Set the zoom lens iris mode selector switch to the MANUAL position.
3) Rotate the zoom lens aperture ring so that IRIS OUT signal level (Pin ③ of the check point array) becomes 240 ± 5 mVp-p. (see Fig. 7-10.)

Note : Return the zoom lens iris mode selector switch to the AUTO position after this adjustment. Also return the GAIN switch to the 0 dB position.

(1) C sensitivity gain 0 dB adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Pin ⑦ of check point array (G DET)
Measuring Instrument	Oscilloscope
Adjustment Address	02 (SENS GAIN C)
Specified Value	320 ± 10 mVp-p

Adjusting method :

1) Set the GAIN switch (S912 on the SW-85 board) to 0 dB.
2) Set adjustment address 02 with the adjusting remote-control unit.
3) Change adjustment data with the adjusting remote-control unit, setting G DET signal level to 320 ± 10 mVp-p.
4) Change the adjustment address in order to store the adjustment data.

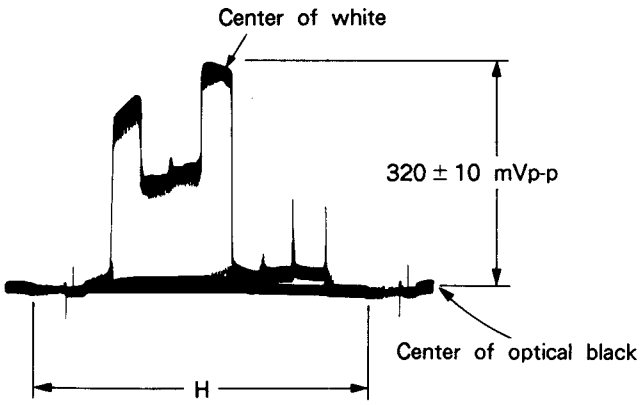


Fig. 7-22.

(2) C sensitivity gain 9 dB adjustment

Subject	Color bar chart standard picture frame
Filter	ND filter 0.9
Measurement Point	Pin ⑦ of check point array (G DET)
Measuring Instrument	Oscilloscope
Adjustment Address	02 (SENS GAIN C)
Specified Value	110 ± 10 mVp-p

Adjusting method :

1) Attach a 0.9 ND filter to the lens.
2) Set the GAIN switch (S912 on the SW-85 board) to 9 dB.
3) Set adjustment address 02 with the adjusting remote-control unit.
4) Change adjustment data with the adjusting remote-control unit, setting G DET signal level to 110 ± 10 mVp-p.
5) Change the adjustment address in order to store the adjustment data.

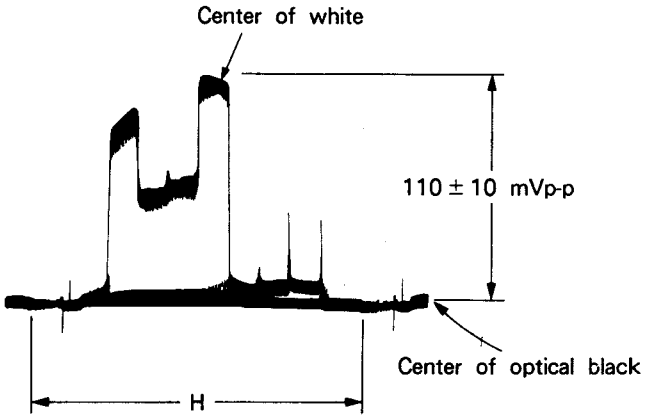


Fig. 7-23.

(3) C sensitivity gain 18 dB adjustment

Subject	Color bar chart standard picture frame
Filter	ND filter 0.9
Measurement Point	Pin ⑦ of check point array (G DET)
Measuring Instrument	Oscilloscope
Adjustment Address	02 (SENS GAIN C)
Specified Value	260 ± 10 mVp-p

Adjusting method :

1) Attach a 0.9 ND filter to the lens.
2) Set the GAIN switch (S912 on the SW-85 board) to 18 dB.
3) Set adjustment address 02 with the adjusting remote-control unit.
4) Change adjustment data with the adjusting remote-control unit, setting G DET signal level to 260 ± 10 mVp-p.
5) Change the adjustment address in order to store the adjustment data.

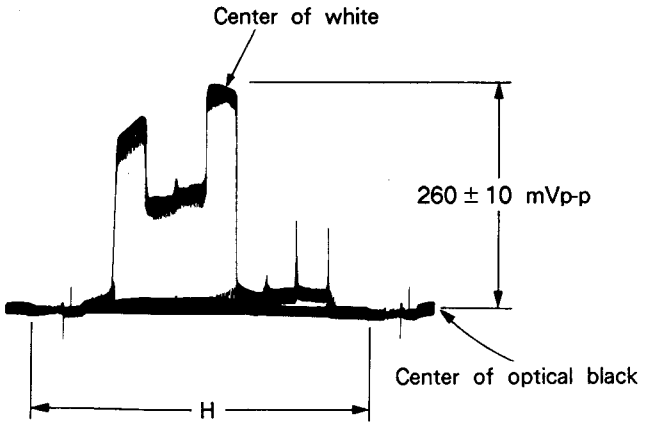


Fig. 7-24.

2. Burst level adjustment (JK-37 board)

Subject	All black (Cover the lens with the black cap)
Measurement Point	Pin (14B) of 32-pin connector (C OUT) or Pin ③ of CN954
Measuring Instrument	Oscilloscope
Adjustment Address	14 (BURST LEVEL)
Specified Value	285 ± 10 mVp-p

Note : Confirm that the video block is connected to the 32-pin connector or Pin (15B) of the 32-pin connector is terminated at 75 Ω.

Adjusting method :

1) Set adjustment address 14 with the adjusting remote-control unit.
2) Change adjustment data with the adjusting remote-control unit, setting burst level to 285 ± 10 mVp-p.
3) Change the adjustment address in order to store the adjustment data.

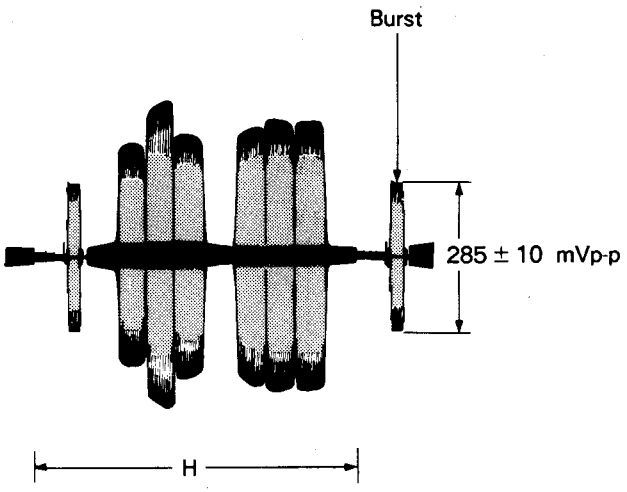


Fig. 7-25.

3. Pre-white balance adjustment (using a vectorscope)

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO OUT terminal of video block
Measuring Instrument	Vectorscope
Adjustment Address	04 (R GAIN) 05 (B GAIN)
Specified Value	Be sure that the center of white luminance point is within ϕ 1 mm from the origin.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 3200K position.
2) Set adjustment address 04 with the adjusting remote-control unit.
3) Change adjustment data with the adjusting remote-control unit so that the white luminance point coincides with the origin.
4) Set adjustment address 05.
5) Change adjustment data so that the white luminance point coincides with the origin.
6) Repeat steps 2 to 5.
7) Change the adjustment address in order to store the last adjustment data.

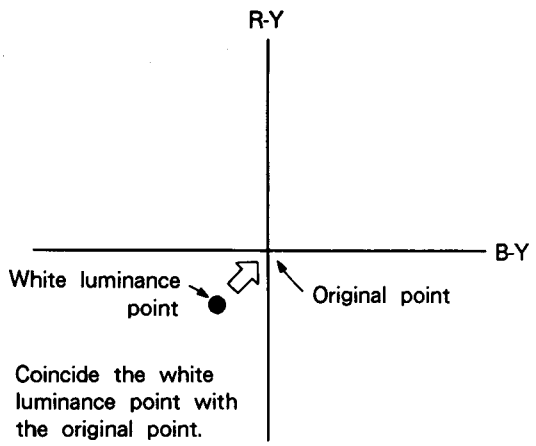


Fig. 7-26.

4. Pre-white balance adjustment (using a oscilloscope) (EM-3 board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X) : Pin ⑭ of W501 (B-Y) CH2 (Y) : Pin ⑮ of W501 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	04 (R GAIN) 05 (B GAIN)
Specified Value	Be sure that the white and black luminance points coincide.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 3200K position.
2) Set adjustment address 04 with the adjusting remote-control unit.
3) Change adjustment data with the adjusting remote-control unit so that the white and black luminance points coincide.
4) Set adjustment address 05.
5) Change adjustment data so that the white and black luminance points coincide.
6) Repeat steps 2) to 5).
7) Change the adjustment address in order to store the last adjustment data.

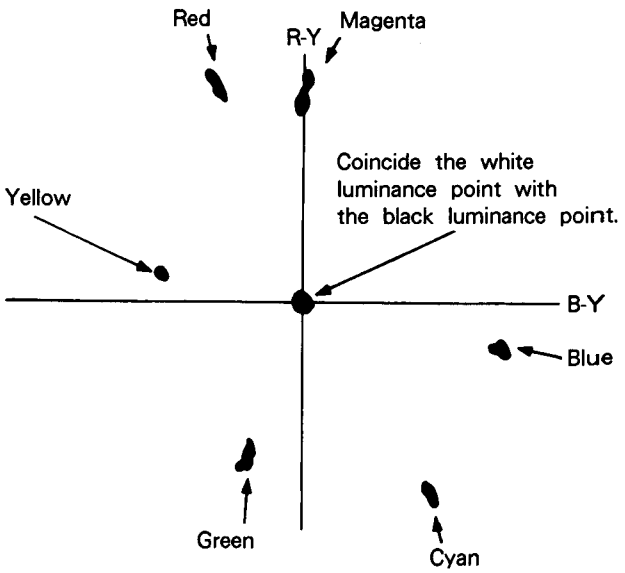


Fig. 7-27.

5. 3200K color reproducibility adjustment (using a vectorscope)

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO OUT terminal of video block
Measuring Instrument	Vectorscope
Adjustment Address	06 (R-Y GAIN) 07 (B-Y GAIN) 08 (R-Y HUE) 09 (B-Y HUE)
Specified Value	Be sure that all color luminance points get into their respective color reproduction frames.

Note : Burst level and 3200K white balance adjustments must be completed before this adjustment.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 3200K position.
2) Adjust the vectorscope PHASE and GAIN controls so that the burst luminance point gets on the specified location of the color reproduction frame.
3) Change adjustment data for each adjustment address with the adjusting remote-control unit so that all color luminance points get into their respective color reproduction frames.
4) Change the adjustment address in order to store the last adjustment data.

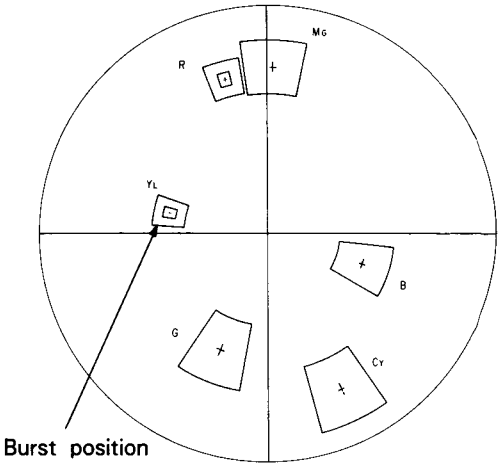


Fig. 7-28.

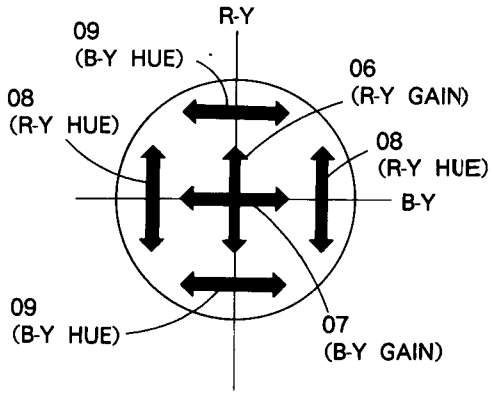


Fig. 7-29. Adjustment address and luminance point moving direction

6. 3200K color reproducibility adjustment (using a oscilloscope)

(1) Gain adjustment (JK-37 board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (14B) of CN951 (C OUT) or Pin ③ of CN954
Measuring Instrument	Oscilloscope External trigger : Pin ⑤ of CN954 (Y OUT)
Adjustment Address	06 (R-Y GAIN) 07 (B-Y GAIN)
Specified Value	Red level : 532 ± 23 mVp-p Yellow level : 327 ± 23 mV-p

Notes : 1) 3200K white balance adjustment must be completed before this adjustment.
2) Confirm that the video block is connected to the 32-pin connector or Pin (15B) of CN951 is terminated at 75 Ω.

Adjusting method :
1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 3200K position.
2) Set adjustment address 07 and the corresponding adjustment data to A0 with the adjusting remote-control unit.
3) Set adjustment address 08 and the corresponding adjustment data to A0.
4) Set adjustment address 09 and the corresponding adjustment data to A0.
5) Set adjustment address 06 and change adjustment data so that the chroma signal red level becomes 532 ± 23 mVp-p.
6) Set adjustment address 07 and change adjustment data so that the chroma signal yellow level becomes 327 ± 23 mVp-p.
7) Change the adjustment address in order to store the last adjustment data.
8) Proceed with hue adjustment.

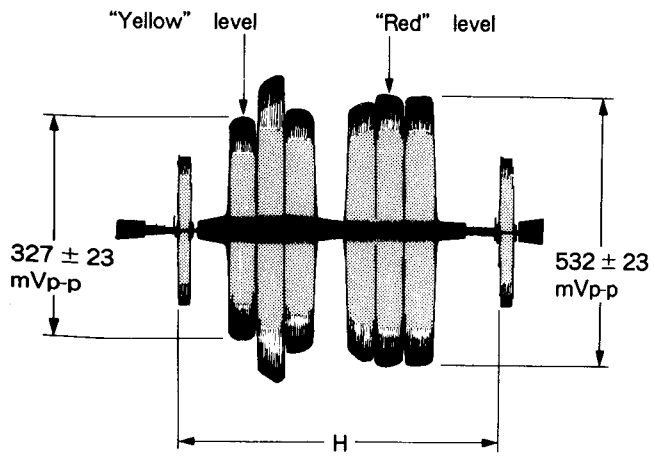


Fig. 7-30.

(2) Hue adjustment

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X) : Pin ⑭ of W501 (B-Y) CH2 (Y) : Pin ⑮ of W501 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	08 (R-Y HUE) 09 (B-Y HUE)
Specified Value	Be sure that all color luminance points get into their respective color reproduction frames.

Note : 3200K white balance adjustment must be completed before this adjustment.

Adjusting method :
1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 3200K position.
2) Make the black luminance point on the oscilloscope screen coincide with the origin.
3) With the adjusting remote-control unit, change adjustment data of adjustment addresses 08 and 09 so that all color luminance points get into their respective color reproduction frames.
4) Confirm hue as reproduced on the monitor screen, and adjustment data of adjustment addresses 08 and 09 finely if necessary.
5) Change the adjustment address in order to store the last adjustment data.

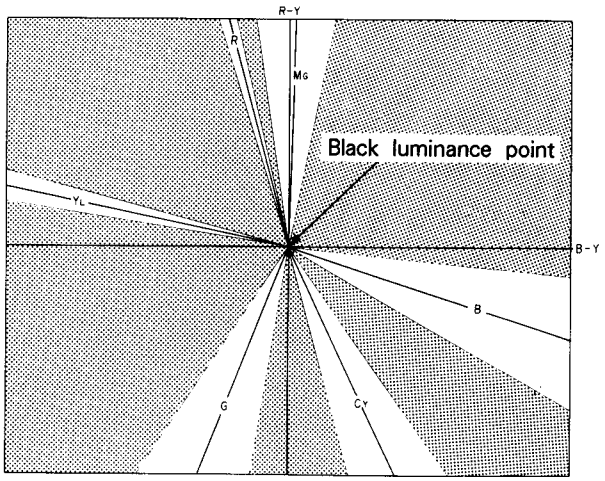


Fig. 7-31.

7. 5600K white balance adjustment (using a vectorscope)

Subject	Color bar chart standard picture frame
Filter	C12
Measurement Point	VIDEO OUT terminal of video block
Measuring Instrument	Vectorscope
Adjustment Address	23 (R5600) 24 (B5600)
Specified Value	Be sure that the center of white luminance point is within ϕ 1 mm from the

Adjusting method :

1) Set the WHITE BALANCE switch (S901 on the SW-86 board) to the 5600K position.
2) Set adjustment address 23 with the adjusting remote-control unit.
3) Change adjustment data with the adjusting remote-control unit so that the white luminance point coincides with the origin.
4) Set adjustment address 24.
5) Change adjustment data so that the white luminance point coincides with the origin.
6) Repeat steps 2) to 5).
7) Change the adjustment address in order to store the last adjustment data.

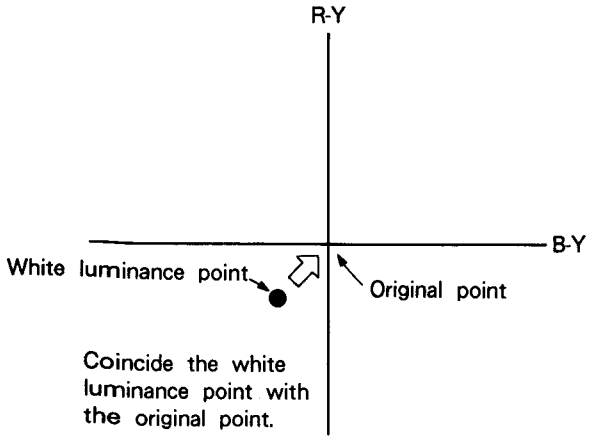


Fig. 7-32.

8. 5600K white balance adjustment (using a oscilloscope) (EM-3 board)

Subject	Color bar chart standard picture frame
Filter	C12
Measurement Point	CH1 (X) : Pin ⑭ of W501 (B-Y) CH2 (Y) : Pin ⑮ of W501 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	23 (R 5600) 24 (B 5600)
Specified Value	Be sure that the white and black luminance points coincide.

Adjusting method :

1) Set the WHITE BALANCE switch (S901 on the SW-86 board) to the 5600K position.
2) Set adjustment address 23 with the adjusting remote-control unit..
3) Change adjustment data with the adjusting remote-control unit so that the white and black luminance points coincide.
4) Set adjustment address 24.
5) Change adjustment data so that the white and black luminance points coincide.
6) Repeat steps 2) to 5).
7) Change the adjustment address in order to store the last adjustment data.

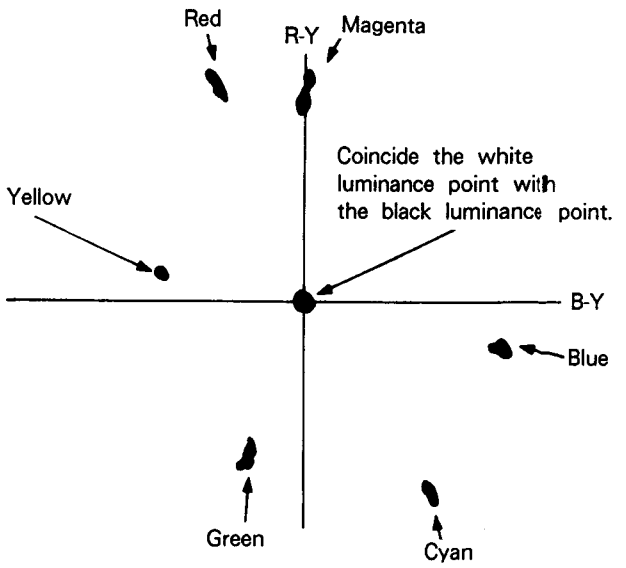


Fig. 7-33.

9. 5600K color reproducibility adjustment (using a vectorscope)

Subject	Color bar chart standard picture frame
Filter	C12
Measurement Point	VIDEO OUT terminal of video block
Measuring Instrument	Vectorscope
Adjustment Address	06 (R-Y GAIN) 07 (B-Y GAIN) 08 (R-Y HUE) 09 (B-Y HUE)
Specified Value	Be sure that all color luminance points get into their respective color reproduction frames.

Note : Burst level and 5600K white balance adjustments must be completed before this adjustment.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 5600K position.
2) Adjust the vectorscope PHASE and GAIN controls so that the burst luminance point gets on the specified location of the color reproduction frame.
3) Change adjustment data for each adjustment address with the adjusting remote-control unit so that all color luminance points get into their respective color reproduction frames (see Fig. 7-29.).
4) Change the adjustment address in order to store the last adjustment data.

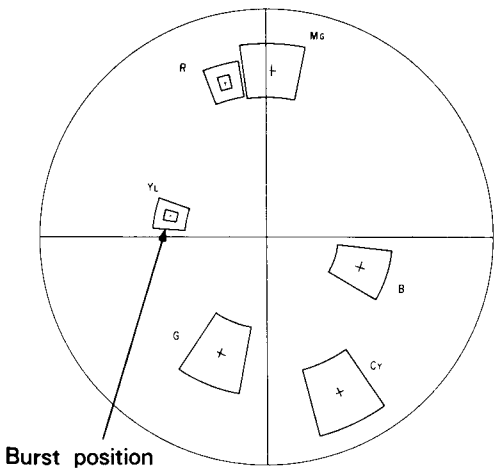


Fig. 7-34.

10. 5600K color reproducibility adjustment (using a oscilloscope)

(1) Gain adjustment (JK-37 board)

Subject	Color bar chart standard picture frame
Filter	C12
Measurement Point	Pin (14B) of CN951 (C OUT) or Pin ③ of CN954
Measuring Instrument	Oscilloscope External trigger : Pin ⑤ of CN954 (Y OUT)
Adjustment Address	06 (R-Y GAIN) 07 (B-Y GAIN)
Specified Value	Red level : 532 ± 23 mVp-p Yellow level : 327 ± 23 mVp-p

Notes : 1) 5600K white balance adjustment must be completed before this adjustment.
2) Confirm that the video block is connected to the 32-pin connector or Pin (15B) of CN951 is terminated at 75 Ω.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 5600K position.
2) Set adjustment address 07 and the corresponding adjustment data to A0 with the adjusting remote-control unit.
3) Set adjustment address 08 and the corresponding adjustment data to A0.
4) Set adjustment address 09 and the corresponding adjustment data to A0.
5) Set adjustment address 06 and change adjustment data so that the chroma signal red level becomes 532 ± 23 mVp-p.
6) Set adjustment address 07 and change adjustment data so that the chroma signal yellow level becomes 327 ± 23 mVp-p.
7) Change the adjustment address in order to store the last adjustment data.
8) Proceed with hue adjustment.

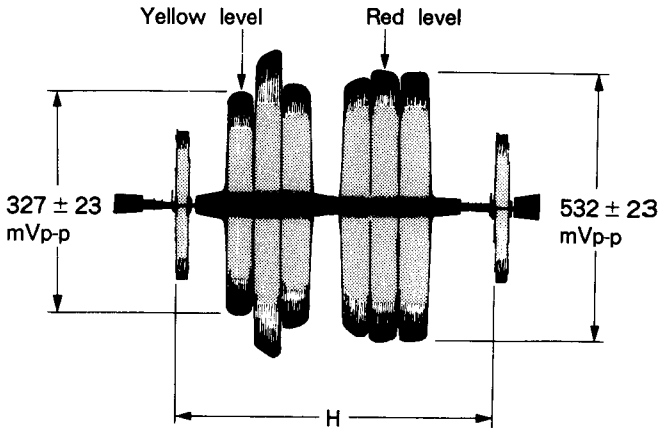


Fig. 7-35.

(2) Hue adjustment

Subject	Color bar chart standard picture frame
Filter	C12
Measurement Point	CH1 (X) : Pin ⑭ of W501 (B-Y) CH2 (Y) : Pin ⑮ of W501 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	08 (R-Y HUE) 09 (B-Y HUE)
Specified Value	Be sure that all color luminance points get into their respective color reproduction frames.

Note : 5600K white balance adjustment must be completed before this adjustment.

Adjusting method :

1) Confirm that the WHITE BALANCE switch (S901 on the SW-86 board) is in the 5600K position.
2) Make the black luminance point on the oscilloscope screen coincide with the origin of the color reproduction frame.
3) With the adjusting remote-control unit, change adjustment data of adjustment addresses 08 and 09 so that all color luminance points get into their respective color reproduction frames.
4) Confirm hue as reproduced on the monitor screen, and adjust data in addresses 08 and 09 finely if necessary.
5) Change the adjustment address in order to store the last adjustment data.

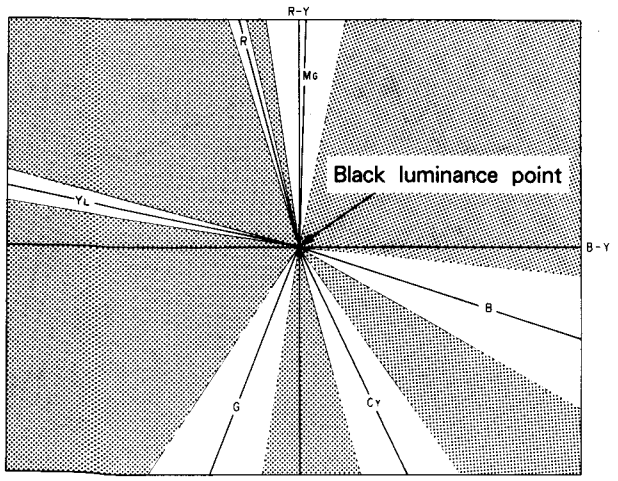


Fig. 7-36.

11. Auto white balance check (JK-37 board)

Subject	All white pattern
Filter	C12 and W10
Measurement Point	Pin (14B) of CN951 (C OUT) or Pin ③ of CN954
Measuring Instrument	Oscilloscope External trigger : Pin ⑤ of CN954 (Y OUT)
Specified Value	30 mVp-p or less

Note : Confirm that the video block is connected to the 32-pin connector or Pin (15B) of CN951 is terminated at 75 Ω.

Checking method :

1) Set the WHITE BALANCE switch (S901 on the SW-86 board) to the AUTO position.
2) Attach a C12 filter to the zoom lens.
3) Press the WHITE BALANCE SET button (S902 on the SW-86 board).
4) Confirm that amplitude of the chroma signal level (bright, noise-free area) is not higher than 30 mVp-p.
5) Remove the C12 filter from the zoom lens and attach a W10 filter instead.
6) Press the WHITE BALANCE SET button.
7) Confirm that amplitude of the chroma signal level (bright, noise-free area) is not higher than 30 mVp-p.

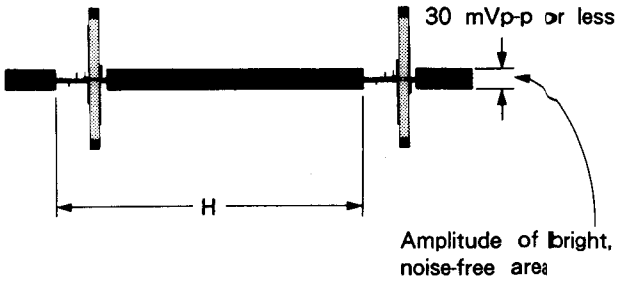


Fig. 7-37.

7-3. ELECTRONIC VIEWFINDER ADJUSTMENT

When adjusting the viewfinder, connect it to the camera and video blocks.
Unless otherwise specified, set the camera block CAMERA/VTR power switch to the STANDBY position.

7-3-1. 9V Power Supply Voltage Adjustment (VF-17 Board)

Mode	CAMERA ON/VTR SAVE
Signal	All black (Cover the lens with the black cap)
Measurement Point	TP201 on VF-18 board (Pin ④ of CN201)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV101
Specified Value	9.0 ± 0.05 Vdc

Adjusting method :
1) Set the camera block CAMERA/VTR power switch to the CAMERA ON/VTR SAVE position.
2) Adjust to 9.0 ± 0.05 Vdc with RV101.
3) Return the CAMERA/VTR power switch to the STANDBY position.

7-3-2. Vertical Hold Adjustment (VF-18 Board)

Mode	Playback
Signal	Non-recorded tape
Measurement Point	Pin ① of CN202
Measuring Instrument	Oscilloscope
Adjusting Element	RV204
Specified Value	19.6 ± 0.4 msec (51 ± 1 Hz)

Adjusting method :
1) Adjust to 19.6 ± 0.4 ms with RV204.

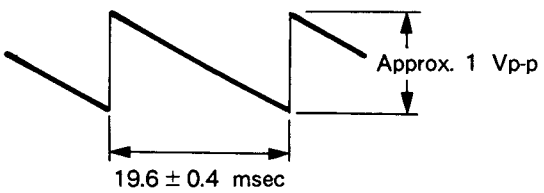


Fig. 7-38.

7-3-3. Horizontal Hold Adjustment (VF-18 Board)

Mode	CAMERA ON/VTR SAVE
Signal	All black (Cover the lens with the black cap)
Measurement Point	CH1 : TP101 on VF-17 board (Pin ④ of CN101) CH2 : TP103 on VF-17 board (Collector of Q108)
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	0.4 ± 0.1 μsec

Adjusting method :
1) Set the camera block CAMERA/VTR power switch to the CAMERA ON/VTR SAVE position.
2) Adjust to 0.4 ± 0.1 μsec with RV201.
3) Return the CAMERA/VTR power switch to the STANDBY position.

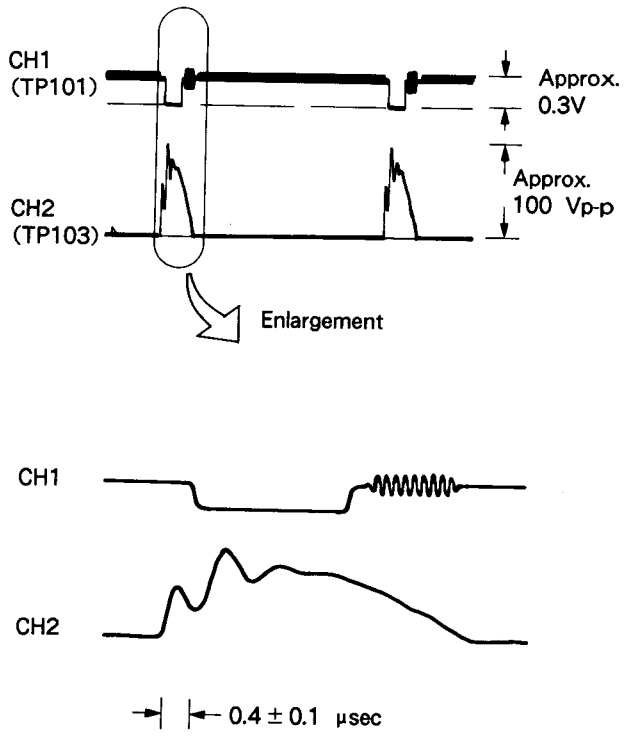


Fig. 7-39.

7-3-4. Focus Adjustment (VF-17 Board)

Mode	Playback
Signal	Alignment tape Monoscope section
Adjusting Element	RV103 (FOCUS)
Specified Value	Optimum resolution

Preparation :

1) Set controls as follows :
   - CONTRAST (RV002 on SW-98 board)
     ····· Turn fully clockwise (↻)
   - BRIGHT (RV001 on SW-98 board)
     ····· Adjust to comfortable brightness

Adjusting method :

1) Adjust to optimum resolution with RV103.

7-3-5. Deflection Yoke Inclination Adjustment

Note : As deflection yoke inclination, vertical / horizontal deflection size and centering adjustments affect each other, repeat them alternately several times.

Mode	Playback
Signal	Alignment tape Monoscope section
Specified Value	0 ± 1°

Preparation :

1) Set controls as follows :
   - CONTRAST (RV002 on the SW-98 board)
     ····· Turn fully clockwise (↻)
   - BRIGHT (RV001 on the SW-98 board)
     ····· Adjust to comfortable brightness

Adjusting method :

1) Loosen the deflection yoke clamp.
2) Set the picture horizontal by rotating the deflection yoke.
3) Tighten the deflection yoke clamp (take care not to tighten it excessively).

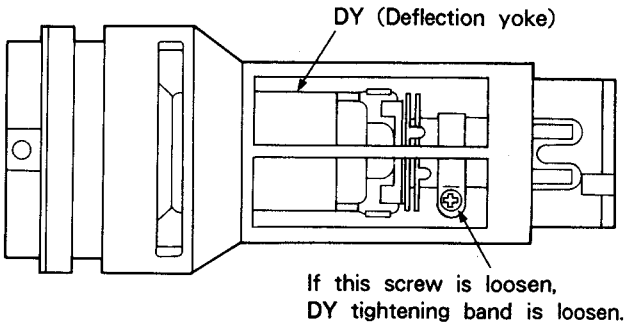
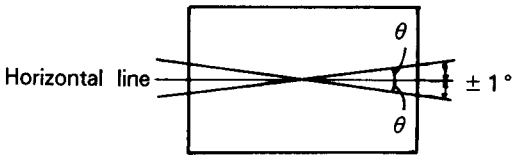


Fig. 7-40.



Specified value : Picture should be within ± 1° of horizontal line.

Fig. 7-41.

7-3-6. Bright Calibration Adjustment (VF-17 Board)

Mode	Playback
Signal	Alignment tape Monoscope section
Adjusting Element	RV104 (BRIGHT)
Specified Value	Be sure that three grades on the dark side of the gray scale turn black.

Preparation :

1) Set controls as follows :
   - CONTRAST (RV002 on the SW-98 board)
     ····· Turn fully clockwise (↻)
   - BRIGHT (RV001 on the SW-98 board)
     ····· Turn fully counterclockwise (↺)

Adjusting method :

1) Turn RV104 fully clockwise (↻).
2) Turn RV104 counterclockwise (↺) slowly, and stop when the three grades on the dark side of the gray scale turn black and cannot be distinguished from each other.

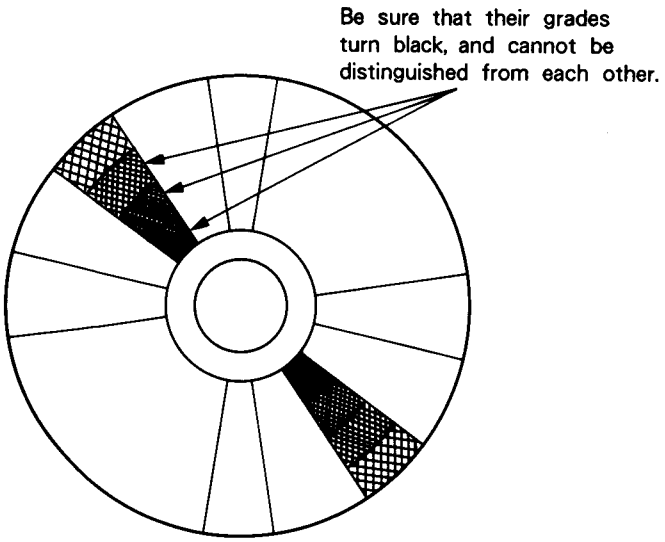


Fig. 7-42.

7-3-7. Vertical Deflection Size Adjustment (VF-18 Board)

Mode	Playback
Signal	Alignment tape Monoscope section
Adjusting Element	RV202 (V SIZE) RV203 (V LINEARITY)
Specified Value	Vertical amplitude : Overscan of vertical direction is 2 to 5% Vertical lineality : Vertical balance of circle is optimum

Note : As deflection yoke inclination, vertical / horizontal deflection size and centering adjustments affect each other, repeat them alternately several times.

Preparation :

1) Set controls as follows :
   - CONTRAST (RV002 on the SW-98 board)
     ····· Turn fully clockwise (↻), then turn back 20° to 40° counterclockwise.
   - BRIGHT (RV001 on the SW-98 board)
     ····· Turn fully counterclockwise (↺), then turn back clockwise until the four grades on the gray scale can be distinguished from each other.

Adjusting method :

1) Adjust RV203 so as to obtain an optimum balance between upper and lower parts of the circle.
2) Adjust overscan in the vertical direction to 2 to 5% (total of upper and lower overscan) with RV202.
3) Repeat steps 1) and 2).

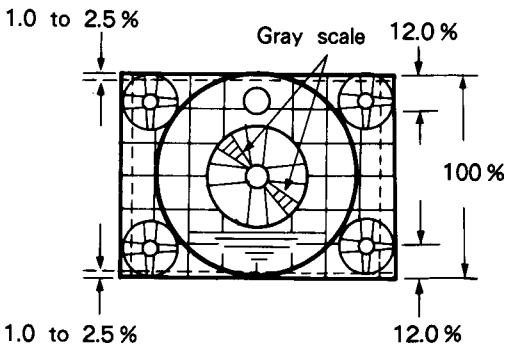


Fig. 7-43.

7-3-8. Horizontal Deflection Size Adjustment (VF-17 Board)

Note : As deflection yoke inclination, vertical/horizontal deflection size and centering adjustments affect each other, repeat them alternately several times.

Mode	Playback
Signal	Alignment tape Monoscope section
Adjusting Element	RV102 (H SIZE) LV101 (H LINEARITY)
Specified Value	Horizontal amplitude : Overscan of horizontal direction is 4 to 7% Horizontal linearity : Balance between right and left parts of the circle is optimum

Preparation :

1) Set controls as follows :
   - CONTRAST (RV002 on the SW-98 board)
     ····· Turn fully clockwise (↻), then turn back 20° to 40° counterclockwise.
   - BRIGHT (RV001 on the SW-98 board)
     ····· Turn fully counterclockwise (↺), then turn clockwise until the four grades on the gray scale can be distinguished from each other.

Adjusting method :

1) Adjust LV101 so as to obtain an optimum balance between right and left parts of the circle.
2) Adjust viewfinder overscan in the horizontal direction to 4 to 7% (total of right and left overscan) with RV102.
3) Repeat steps 1) and 2).

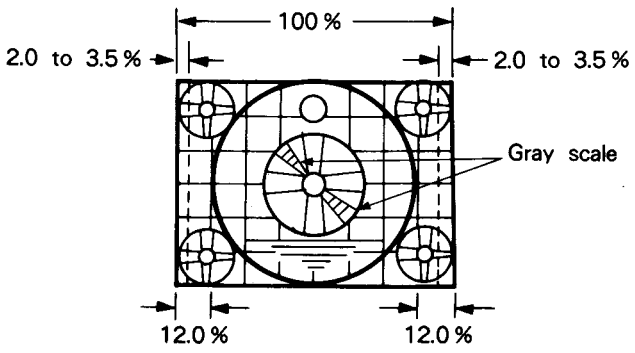


Fig. 7-44.

7-3-9. Centering Adjustment

Note : As deflection yoke inclination, vertical/horizontal deflection size and centering adjustments affect each other, repeat them alternately several times.

Mode	Playback
Signal	Alignment tape Monoscope section
Specified Value	0 ± 2%

Adjusting method :

1) Adjust the centering magnets so that the picture gets centered in the vertical and horizontal directions.

Note : Since centering is affected by earth magnetism, rotate the unit 360° horizontally to find the center of the displacement range, and perform adjustment at that position.

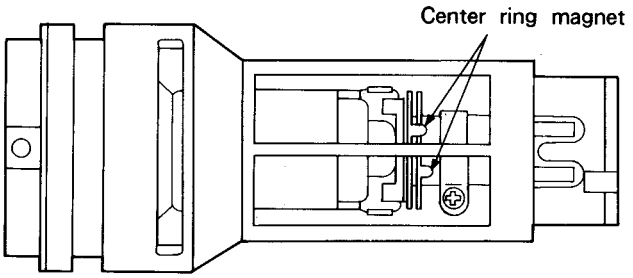


Fig. 7-45.

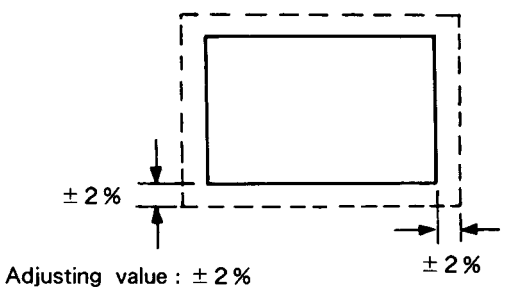
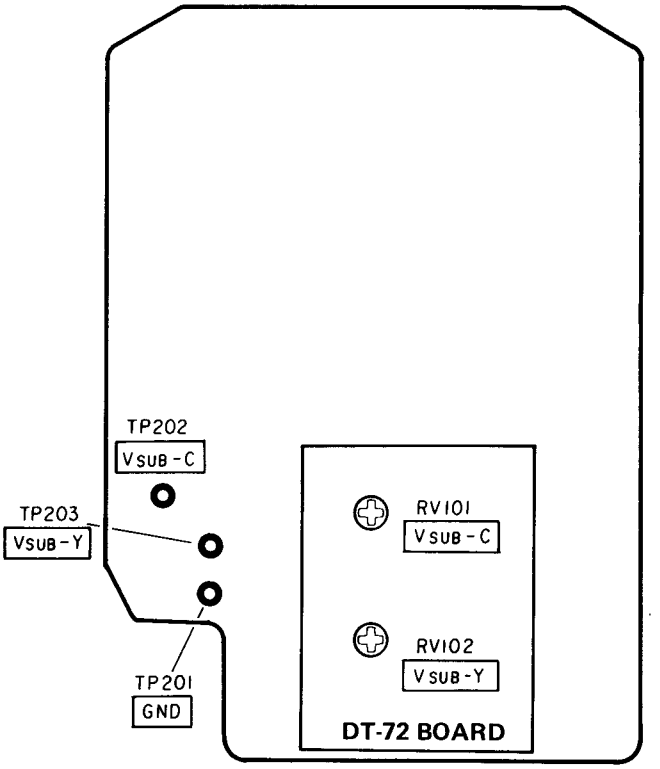


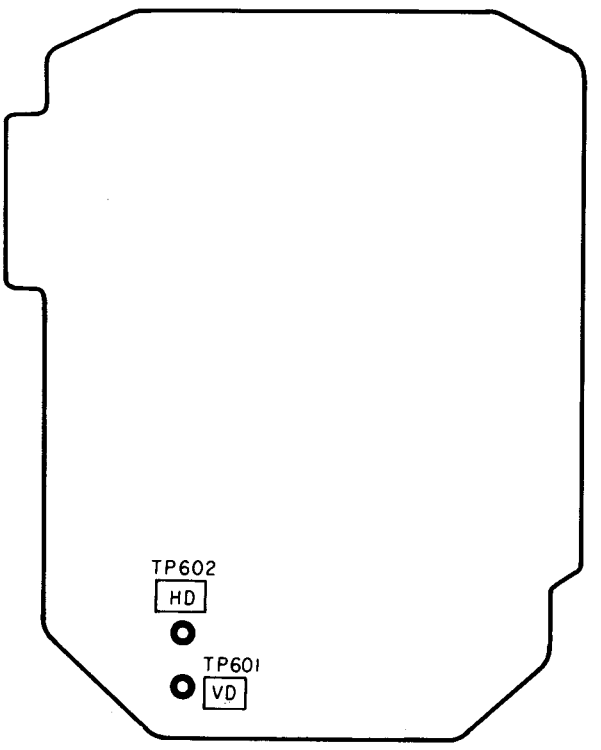
Fig. 7-46.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

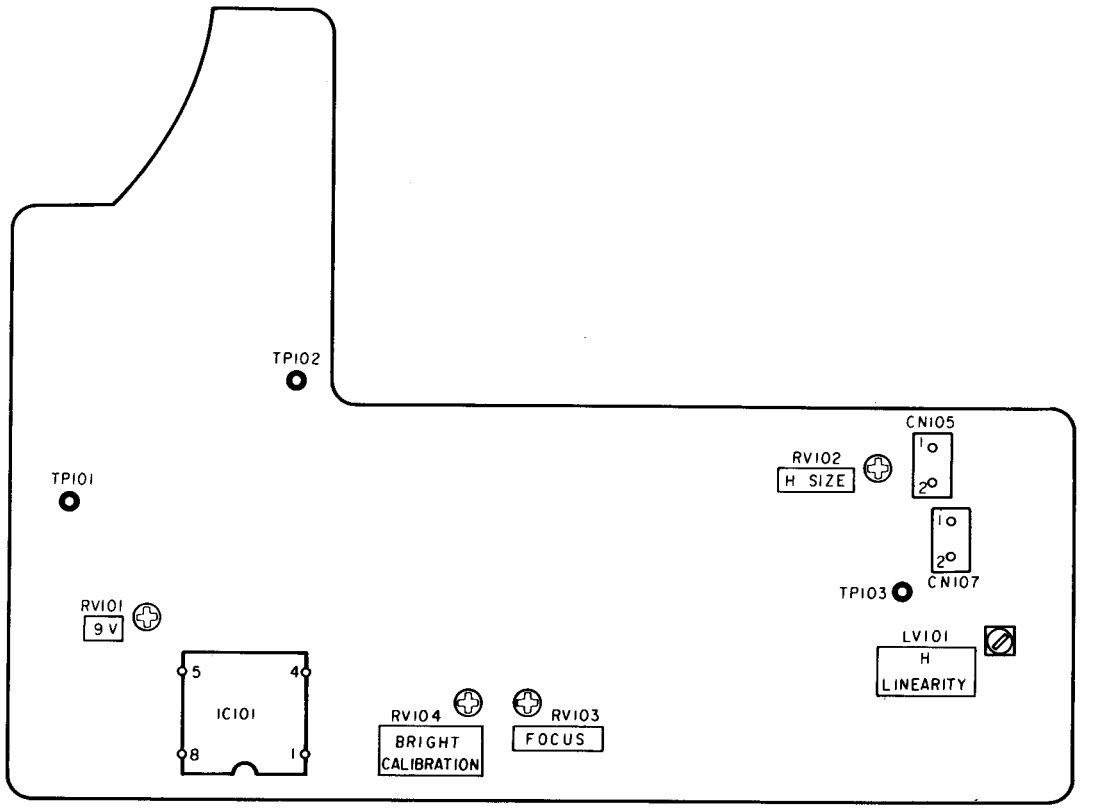
TP-47 BOARD (COMPONENT SIDE)



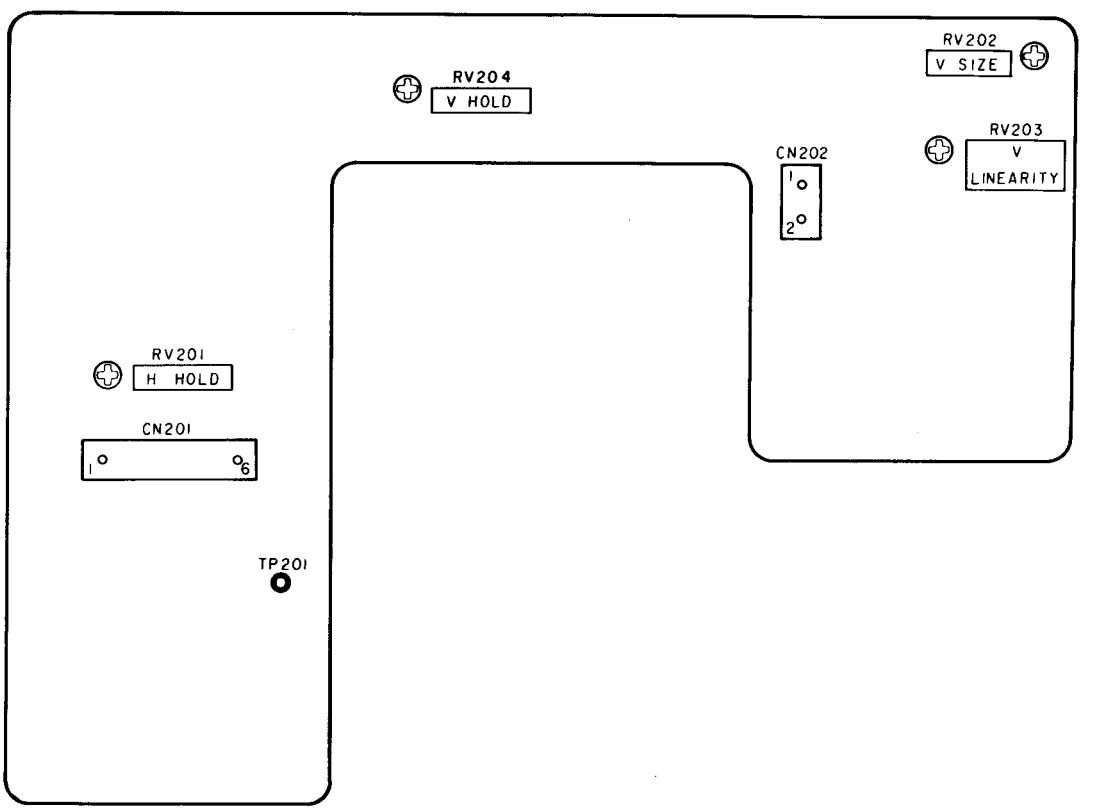
EM-3 BOARD (COMPONENT SIDE)



VF-17 BOARD (COMPONENT SIDE)



VF-18 BOARD (COMPONENT SIDE)



SECTION 8
MECHANICAL SECTION ADJUSTMENT

Note : Regarding removal of cabinet and respective board, see Section 2. DISASSEMBLY.

8-1. NOTES ON SERVICING

1) When the unit's cover has been removed to work on the internal circuits, take care of where and in which position you place the unit.
2) When performing general adjustment of picture quality, etc., always use the KR5-1ED or KR5-2ED ED-Beta alignment tape. For tracking adjustment, however, use the KR5-1V alignment tape.

8-2. OPERATING THE MECHANISM WITHOUT A CASSETTE LOADED

8-2-1. Setting the Threading - Completed Mode without a Cassette Loaded (This condition will be referred to as the STOP mode)

1) With the cassette compartment down, push the cassette detection lever ❶ in Fig. 8-1.
2) With the cassette compartment up, push the cassette compartment lock lever assembly ❷ in Fig. 8-2. with a slotted screwdriver ⊖ or the like to lock, then push the cassette detector lever ❶.
   Note : Since the cassette compartment lock is not automatically released, pull the release slide plate ❸ in the direction of arrow Ⓐ and push the lock lever assembly ❷ in the same direction to put it back in its original position.

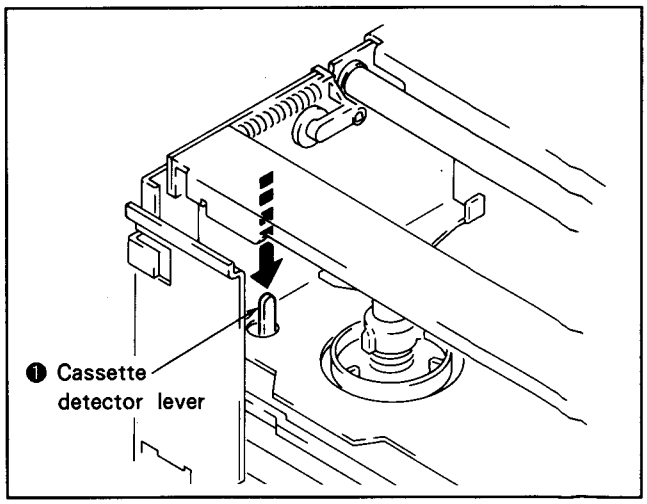


Fig. 8-1. Cassette detector lever

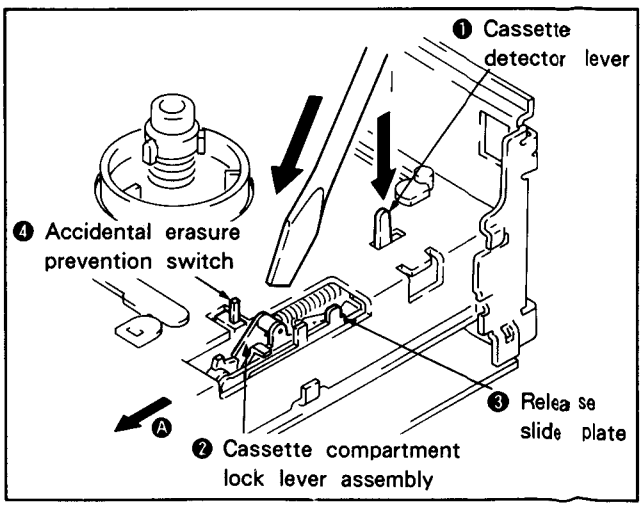

❶ Cassette detector lever
❹ Accidental erasure prevention switch
❸ Release slide plate
Ⓐ
❷ Cassette compartment lock lever assembly

Fig. 8-2. Cassette compartment lock

8-2-2. Setting the Playback Mode without a Cassette Loaded

After setting the STOP mode as explained in 8-2-1., press the playback key.

8-2-3. Setting the Recording Mode without a Cassette Loaded

1) Set the threading-completed mode as explained in 8-2-1., then press the accidental erasure prevention switch ❹ in Fig. 8-2.
2) Without releasing the accidental erasure prevention switch ❹, press the recording key.
   Note : Since the pause lamp lights together with the recording lamp when the recording key is pressed, the pause condition should be cancelled. When the camera head block is connected, press VTR key.

8-2-4. Threading and Unthreading Manually with the Power OFF (See Fig. 8-3.)

1) Threading can be performed by turning the gear pulley ❶ in the direction of arrow Ⓐ. Turn it in the direction of arrow Ⓑ to unthread.

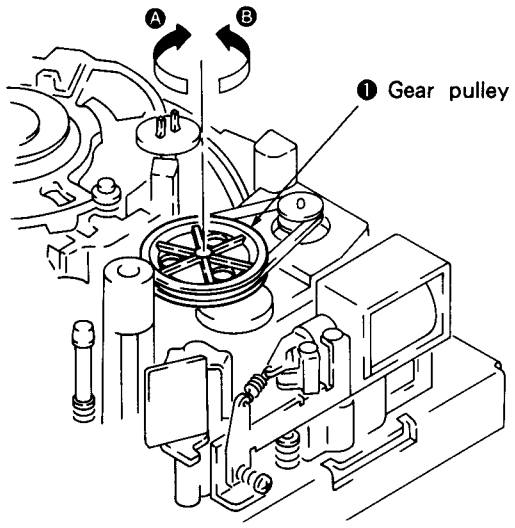


Fig. 8-3.

8-3. PERIODIC CHECK AND MAINTENANCE

The following maintenance and periodic check procedures are recommended in order to make the most of the unit's functions and performance, and to extend the life of the unit and tapes.

* The following maintenance procedures must always be performed after repairing, regardless of how long the user has operated the unit.

8-3-1. Cleaning of Rotating Head Disk Assembly

1) Press a chamois cloth (Jig Ref. No.J-7.) which has been dipped in cleaning fluid (Jig. Ref. No.J-5.) lightly against the rotating drum assembly, then turn the rotating head disk slowly by hand.

Notes : • Never use the motor to turn the head disk for cleaning.
• Never move the chamois cloth in the vertical direction to the head tip for cleaning. This might damage the head tip.

8-3-2. Cleaning of Tape Transport System

1) Clean parts that contact the tape (tape guides, drum assembly surface, capstan, pinch roller, etc.) with a chamois cloth dipped in cleaning fluid.

8-3-3. Cleaning of Driving System

1) Clean the driving parts with a chamois cloth dipped in cleaning fluid.

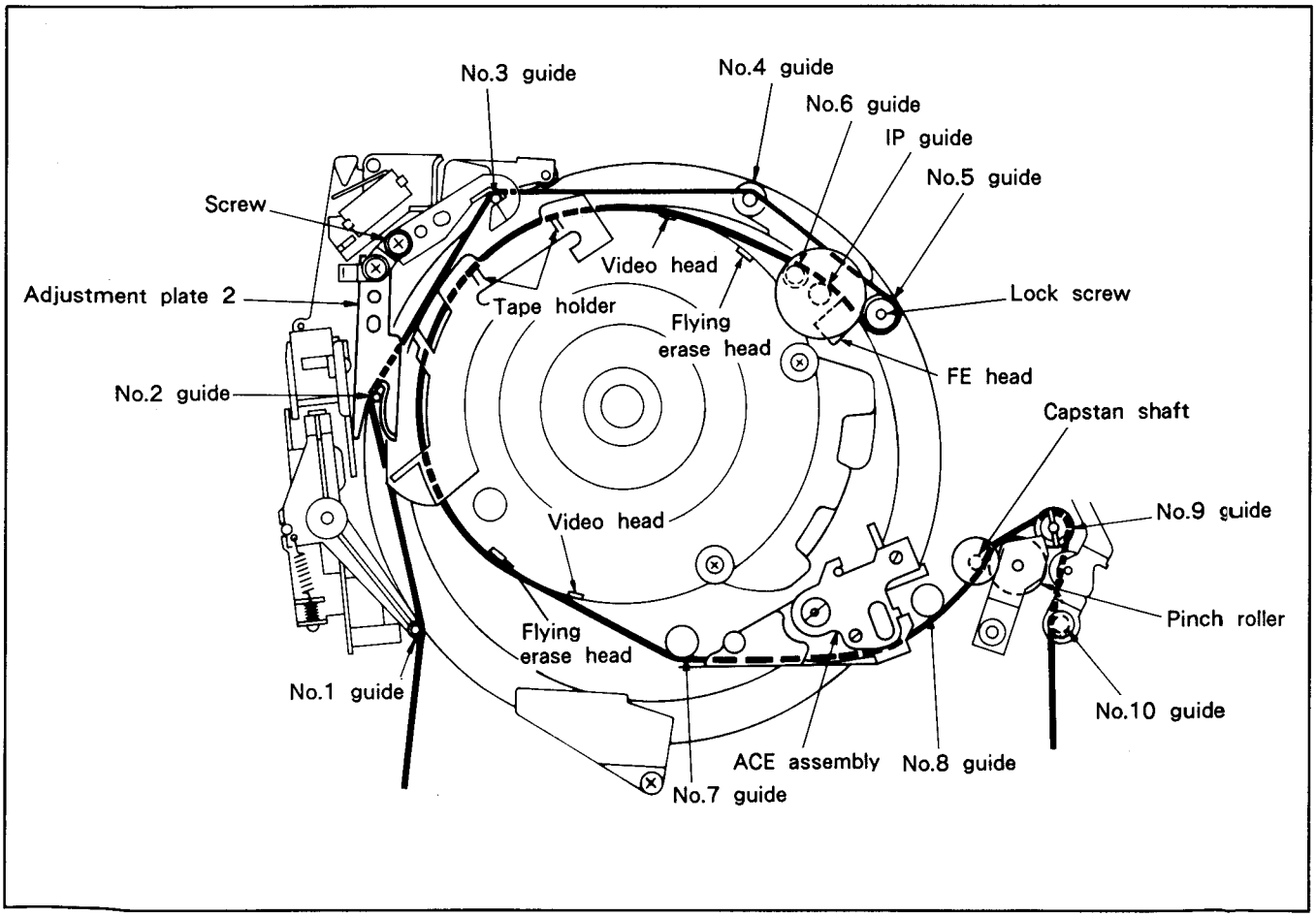


Fig. 8-4. Parts requiring cleaning

8-3-4. Periodic Check Items

Perform check and maintenance of the items listed below, according to the time the unit has been used.

○Clean ☆Check

Maintenance/Check		Operating Time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Transport System	Cleaning of tape transport surface	○	○	○	○	○	○	○	○	○	○	Perform also after every repair.
	Cleaning and demagnetization of AC assembly	○	○	○	○	○	○	○	○	○	○	
	Cleaning and demagnetization of rotating drum assembly	○	○	○	○	○	○	○	○	○	○	Head life depends heavily on operating conditions and usage.
Driving System	Rubber belt (timing belt)	○	○	○	○	○	○	○	○	○	○	3-726-133-01 Perform also after every repair.
	Cleaning of solenoid core and hole	–	–	–	○	–	–	–	○	–	–	Clean core and hole with a dry cloth.
Performance Confirmation	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the source of abnormal noise.
	Confirmation of back tension	–	☆	–	☆	–	☆	–	☆	–	☆	See "9-3-1. FWD Back Tension Adjustment" in VIDEO BLOCK ADJUSTMENT.
	Confirmation of recording and playback functions	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform also after every repair.

Note : On overhaul
After overhauling the unit, replace parts as indicated in the table above.

8-3-5. Tools and Jigs Required for Servicing

Ref. No.	Name	Part Code	Marking	Application and Remarks
J-1	Alignment tape (KR5-1V)	8-969-995-92	–	Tracking adjustment
J-2	Parallel plate	J-6086-570-A	SL-0657	Audio/control head azimuth adjustment
J-3	Dental mirror Dental mirror (mirror)	J-6080-029-A J-6080-030-1	SL-5052	For tape path and tape transport adjustment and check.
J-4	Alignment tape for ED Beta (KR5-1ED)	8-192-532-01	–	General adjustment of picture quality, etc.
	Alignment tape for ED Beta (KR5-2ED)	8-192-533-01	–	General adjustment of picture quality and video head dihedral angle adjustmet.
J-5	Cleaning fluid	Y-2031-001-0	–	
J-6	Thickness gage	9-911-053-00	–	
J-7	Chamois cloth	2-034-697-00	–	Cleaning
J-8	Head demagnetizer	Commercial available	–	Demagnetization of video and audio heads
J-9	Cleaning cassette tape	8-888-004-00	–	Video head cleaning
J-10	Dihedral angle adjusting screw	J-6080-013-A	SL-0013	Video head dihedral angle adjustment
J-11	Video head checker	7-732-080-01	SL-5151	Video head check

Note : KR5-2ED is recorded the same recorded contents as KR5-1ED and the monoscope signal for the video head dihedral angle adjustment.

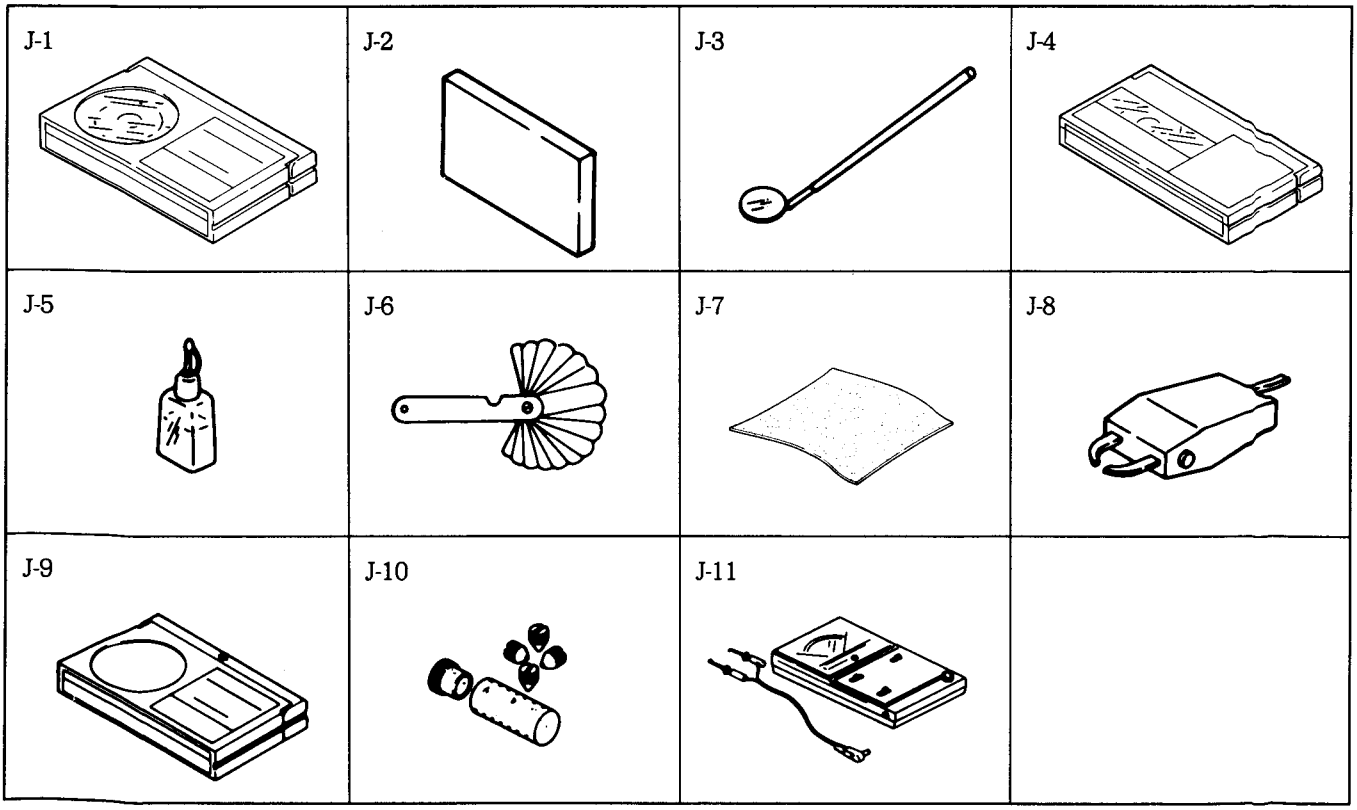


Fig. 8-5. Tools and jigs required for servicing

8-4. CHECK, ADJUSTMENT AND REPLACEMENT PROCEDURES

8-4-1. Video Head Wear Check

As the accuracy of this check depends on head condition and checker precision, the results should be taken only as an approximate indication of head wear.

1. Adjustment of video head checker

1) Pointer adjustment
   Confirm that the video head checker pointer is at the pointer adjustment position (left of the scale).
   Otherwise, adjust it with the pointer adjustment control.
2) Battery voltage check
   Set the the MODE switch to the "BATT" position, then turn the POWER switch ON.
   The pointer should deflect within the range marked "BATT". If it does not, replace the battery (6F22 type).
3) Calibration adjustment
   Turn the POWER switch ON, set the MODE switch to "CAL", and adjust the CAL control so that the pointer is on the CAL mark.

Notes :
- Be sure to perform this adjustment whenever the RANGE switch position has been changed.
- Always confirm calibration, and adjust if necessary, before performing head measurements.

2. Measurement procedure (See Figs. 8-6. and 8-7.)

1) Remove two precision screws that hold the damper assembly in place, then remove the damper assembly.
2) Unsolder the two soldered lead wires from the video heads.
3) Attach the measuring clips to the lead wire from the A-ch video head and to the pin nearest to the spot where the lead wire was soldered. Be sure to separate the lead wires by at least 1.5 cm.
4) Set the RANGE switch to "B" and the MODE switch to "MEAS". The pointer will deflect to indicate the head wear condition.
5) Check the B-ch video head following steps 3) and 4).

Note : As pointer deflection might be different for the two heads, be sure to measure wear for both.

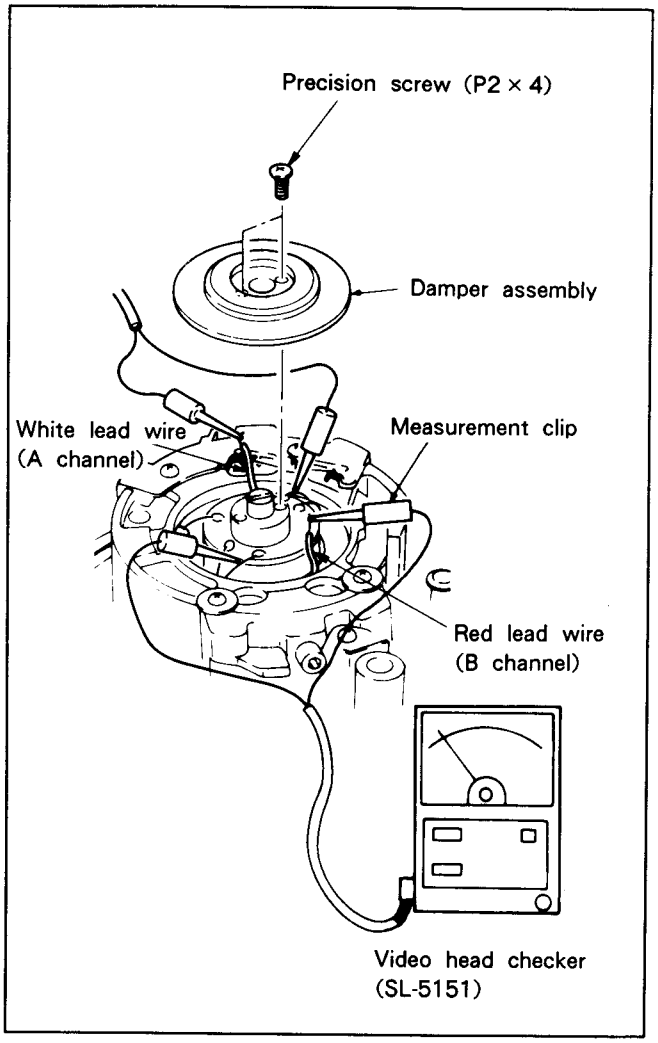


Fig. 8-6.

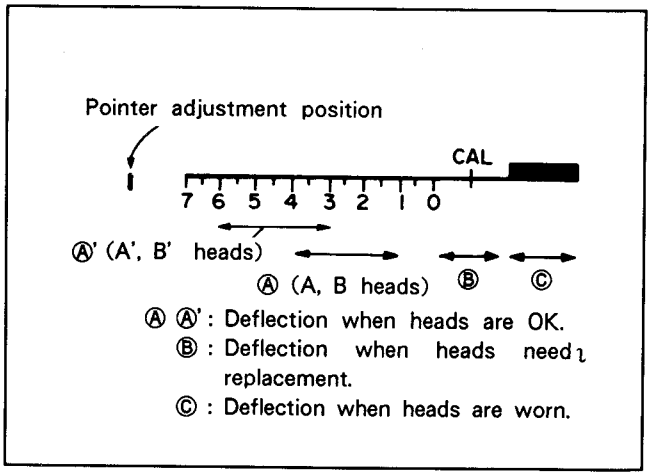

Pointer adjustment position
CAL
7 6 5 4 3 2 1 0
Ⓐ' (A', B' heads)
Ⓐ (A, B heads)
Ⓑ
Ⓒ
Ⓐ Ⓐ' : Deflection when heads are OK.
Ⓑ : Deflection when heads need replacement.
Ⓒ : Deflection when heads are worn.

Fig. 8-7. Measurement values

8-4-2. Removal of the Rotary Head Disk Assembly (See Figs. 8-8. and 8-9.)

1) Bend the two claws ❶ inward and remove the roller weight ❷.
2) Remove the two precision screws ❸, then remove the damper assembly ❹.
3) Use a 2.5 mm hexagonal wrench to remove the hexagonal socket bolt ❺, then remove the upper drum assembly ❻.
4) Unsolder the rotary head disk ❼ relay board (one red and one white lead wire, and four pins ❽)
5) Remove the four hexagonal socket bolts ❾, then remove the rotary head disk assembly ❼.
   Note : Be careful not to touch the head tip or hit it against anything at this time.

8-4-3. Mounting the Rotary Head Disk Assembly (See Figs. 8-8. and 8-9.)

1) Insert the rotary head disk ❼ in place, taking care that the red and white lead wires are in the right positions.
2) Tighten the four hexagonal socket bolts ❾, then solder the two lead wires and the four pins ❽.
   Note : Solder lead wires correctly, taking care not to break them.
3) Mount the upper drum, taking care (as during removal) not to move the adjusting plate. Tighten the hexagonal socket bolt ❺ while pressing the two points that determine height.
   Note : When inserting the upper drum, take care that it does not touch the head tip.
4) Fit the roller weight ❷ onto the two claws ❶.

Note : When replacing the rotating drum head, you might find the rotating head disk assembly hard to remove. In that case, follow the steps below (Fig. 8-9.).
   1) Remove the four hexagonal socket bolts ❾ that hold the rotating head disk assembly in place.
   2) If the head disk is jammed on tight and is hard to remove, tighten two of the four hexagonal socket bolts ❾ removed in step 1) into the two threaded removal holes ❿, tightening them a little at a time.
   The head disk will be lifted up by the two screws and will come off easily.

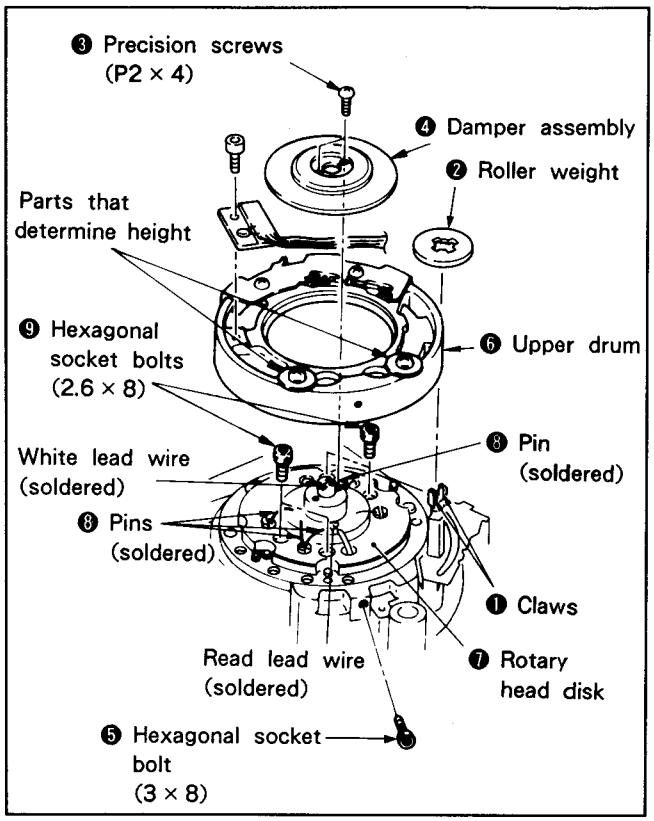

❸ Precision screws (P2 × 4)
❹ Damper assembly
❷ Roller weight
Parts that determine height
❾ Hexagonal socket bolts (2.6 × 8)
❻ Upper drum
White lead wire (soldered)
❽ Pin (soldered)
❽ Pins (soldered)
❶ Claws
Read lead wire (soldered)
❼ Rotary head disk
❺ Hexagonal socket bolt (3 × 8)

Fig. 8-8. Removal of the rotary head disk assembly (1)

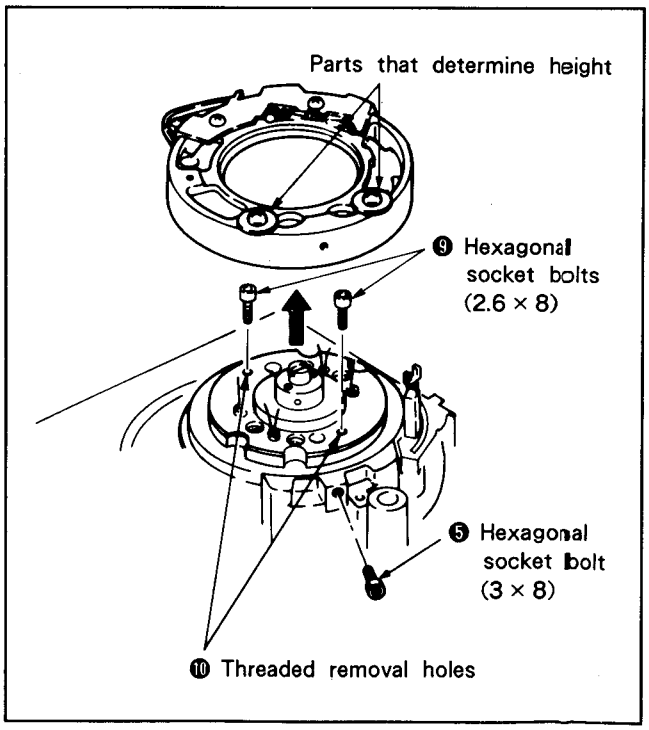


Fig. 8-9. Removal of the rotary head disk assembly (2)

8-4-4. Replacement of the Drum Assembly (See Figs. 8-10. and 8-11.)

1) Measure and record the clearance Ⓐ between the adjustment plate 2 ❶ and the upper drum holder section.
   Note : Be sure to carry out this step, as adjusting plate mounting position greatly affects tape path adjustment.
2) Measure and record the clearance Ⓑ between the adjustment plate 3-1 ❷ and the upper drum holder section.
   Note : Be sure to carry out this step, as adjusting plate mounting position greatly affects tape path adjustment.
3) Remove the two screws ❸, then remove the adjustment plates 3-1 ❷ and 2 ❶, and the tape guide grounding plate ❹.
4) Bend the two claws ❺ inward and remove the roller weight ❻.
5) Remove the hexagonal socket bolt ❼, then remove the dew condensation sensor ❽.
6) Remove the four connectors ❾.
7) Remove the three screws ❿ from the chassis rear, then remove the main unit of the drum assembly ⓫.

Note : Always perform tape path adjustment after replacement.

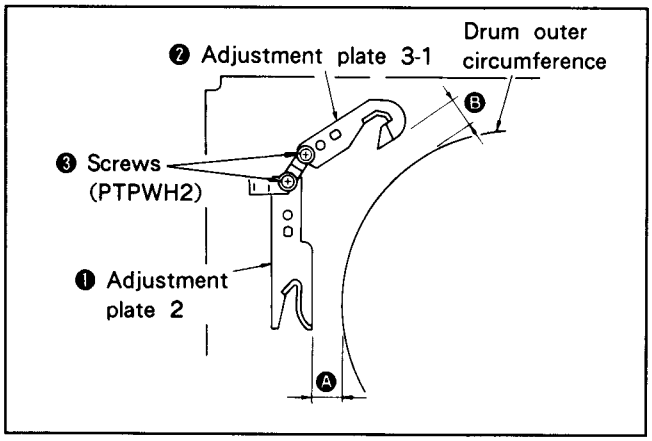


Fig. 8-10. Position measurement of adjustment plates 3-1 and 2

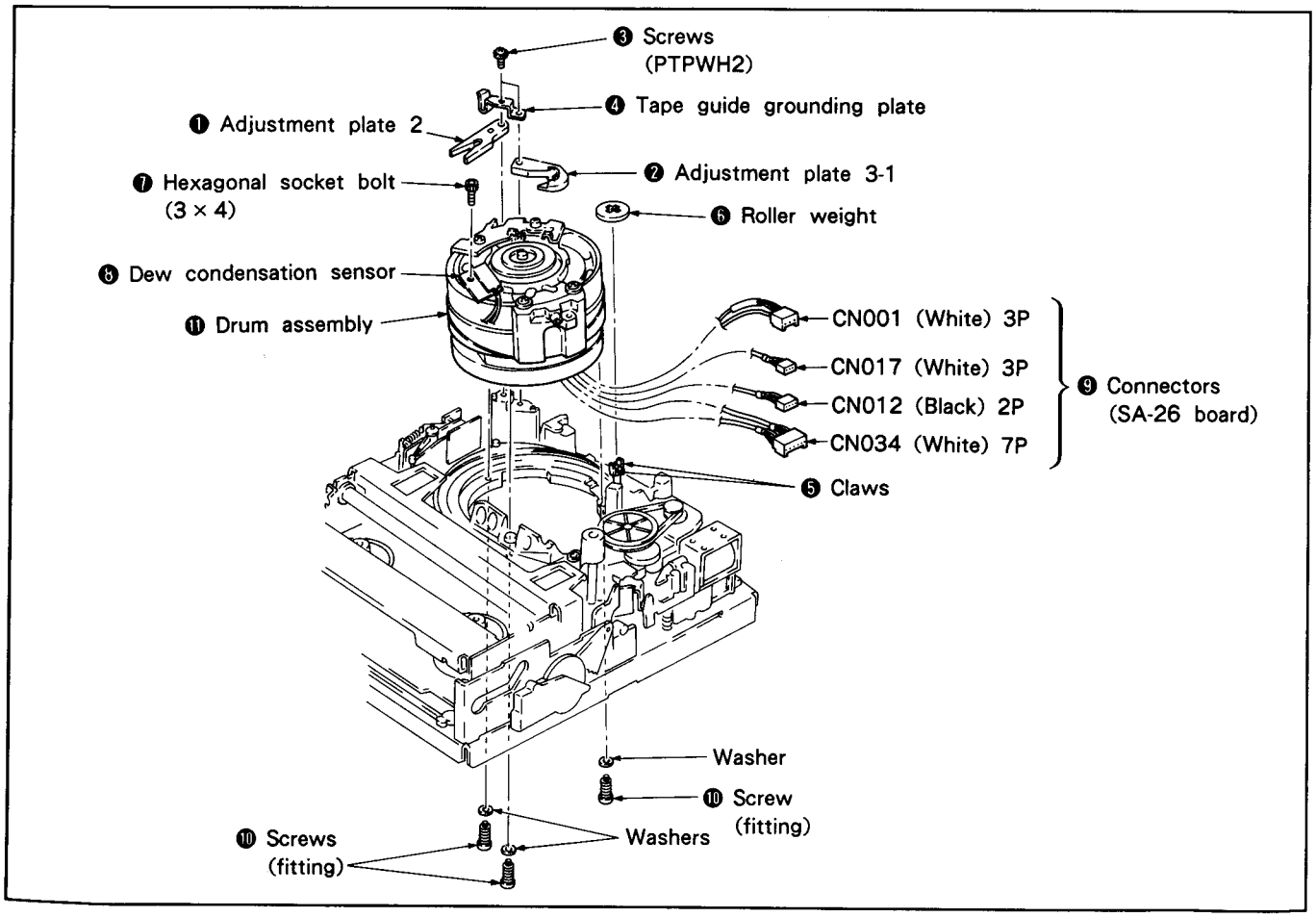


Fig. 8-11. Removal of the drum assembly

8-4-5. Adjustment of the Motor Gap When Replacing the Drum Assembly (See Fig. 8-12.)

After replacing the drum assembly, adjust the clearance between the motor rotor and the coil to 0.3 mm to 0.6 mm.

1) When reassembling the drum, use the spacers which where removed to produce a clearance of 0.3 to 0.6 mm. Measure the clearance using the gage. If the clearance is adjusted correctly, the 0.3 mm side should fit in and the 0.6 mm side should not.
2) If this fails to give the correct clearance width, use a combination of the four supplied spacers (0.3 mm), instead of the removed spacers, to obtain the correct width.

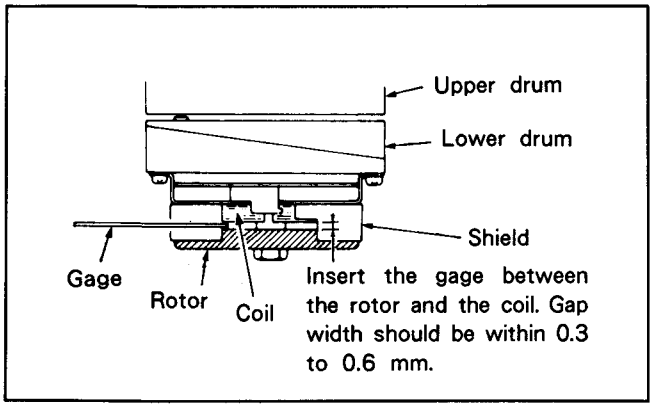


Fig. 8-12. Checking the motor clearance width after replacing the drum assembly

8-4-6. Removal of the Stator and Rotor When Replacing the Drum (See Fig. 8-13.)

1) Remove the nut ❶ and washer ❷.
2) Remove the rotor ❸ from the stator ❹.
3) Remove the two screws ❺, then remove the stator from the drum main unit.

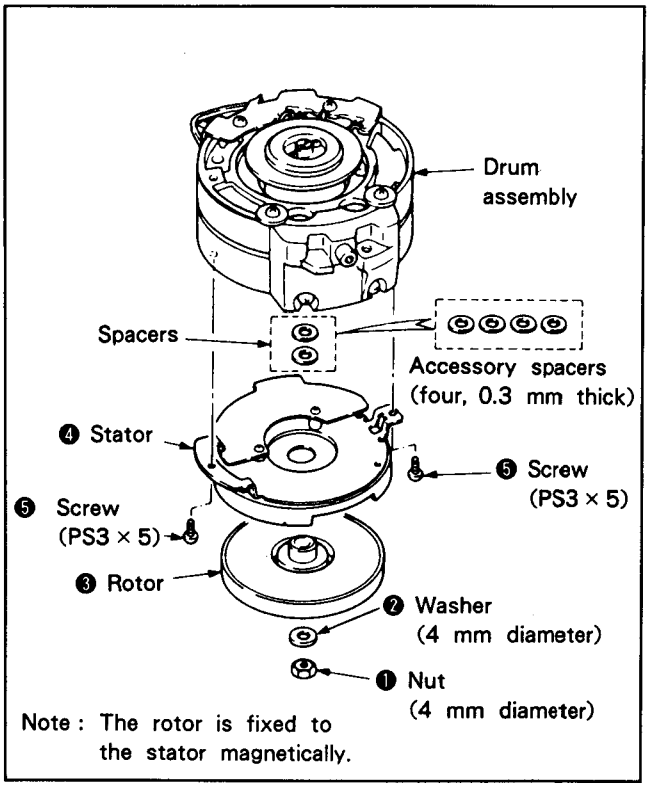

Drum assembly
Spacers
Accessory spacers (four, 0.3 mm thick)
❹ Stator
❺ Screw (PS3 × 5)
❺ Screw (PS3 × 5)
❸ Rotor
❷ Washer (4 mm diameter)
❶ Nut (4 mm diameter)
Note : The rotor is fixed to the stator magnetically.

Fig. 8-13. Removal of the stator and rotor when replacing the drum

8-4-7. Check and Adjustment of the Video Head Dihedral Angle

Note : Use the KR5-2ED aligument tape.

This adjustment is generally unnecessary, but might be required only after replacing the video head disk (The video disk head used for maintenance has been precisely adjusted at the factory by means of a microscope, and almost never needs to be readjusted). To determine whether video head dihedral angle is correct, play back an alignment tape (KR5-2ED) at the tracking center position.
At any other position (If the tracking is off-center), even if the dihedral angle is correct, the picture will be reproduced as if it were off.
ACE assembly position adjustment must be completed before performing this adjustment (Refer to 8-6. TAPE PATH ADJUSTMENT).

1. Checking procedure

At the tracking center position, play back the βII monoscope section of the alignment tape, and pay attention to the Ⓐ or Ⓑ portion of the thick line. If the part under the switching line is solid, or it is split in two branches separated by a clearance smaller than the width of the line itself (Even if it is bent due to skew), then the dihedral angle is correct and no adjustment is necessary. Otherwise, adjust as explained below.

2. Adjusting method

1) As shown in Fig. 8-14., insert the two dihedral angle adjusting screws (Jig. Ref. No.J-10) into the adjusting holes on the side to which the video head red lead wires are connected, tightening them until their tops are same level with the video head disk (If the adjusting screws are not tightened in deep enough, their heads will strike the upper drum and hinder rotation of the video head disk. Conversely, if they are excessively tightened they will move the head base, throwing the dihedral angle off).
   Note : The side on which the white lead wires are connected is the reference side, and must not be moved.
2) Tighten one of the two adjusting screws a little bit deeper until resistance is felt. Tighten beyond this point will move the video head, allowing for dihedral angle adjustment.
3) With the dihedral angle adjusting screws in place, play back the βII monoscope section of the alignment tape and confirm the reproduction of vertical lines. If they are split apart more than before, a screw has been excessively screwed in. Turn it counterclockwise to loosen, then adjust by tightening the other screw.
4) After adjustment, remove the adjusting screws and reconfirm.

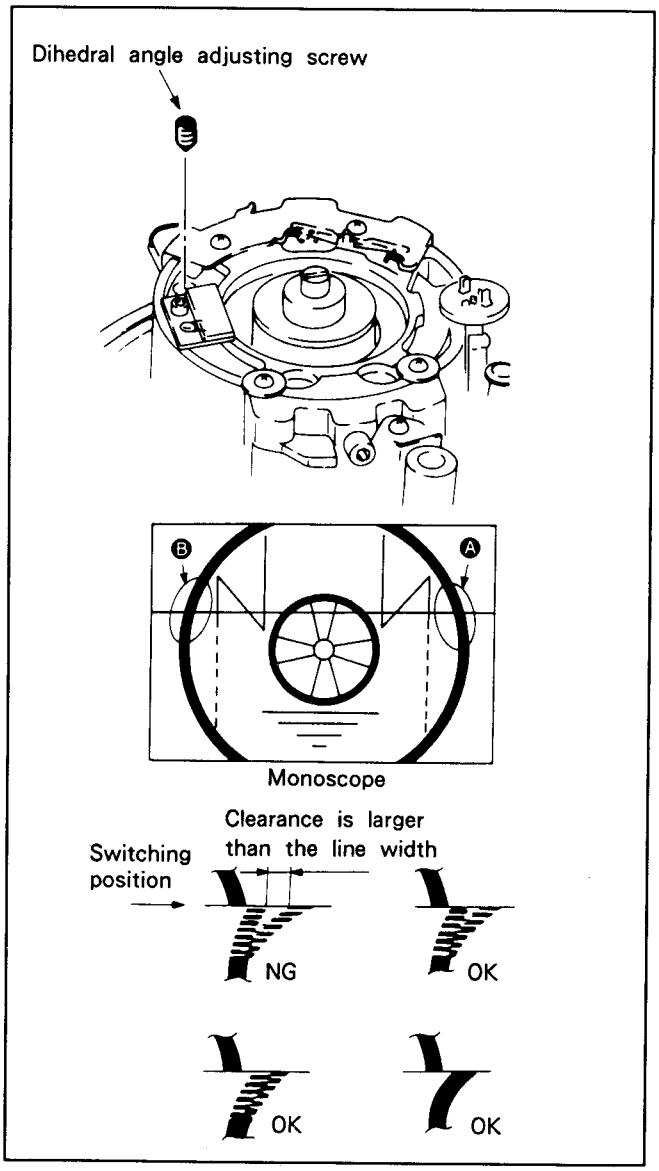


Fig. 8-14. Adjustment of the video head dihedral angle

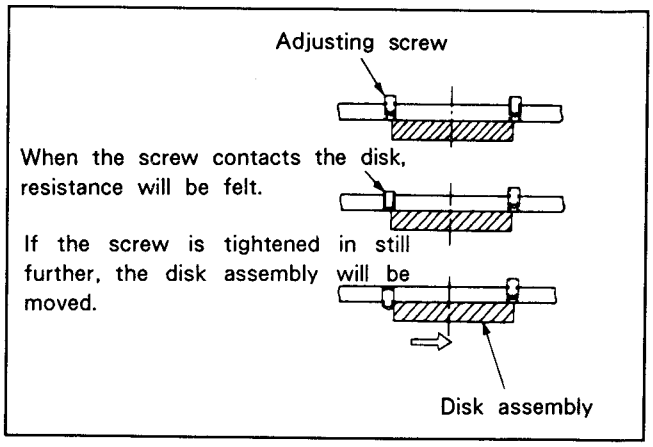

Adjusting screw
When the screw contacts the disk, resistance will be felt.
If the screw is tightened in still further, the disk assembly will be moved.
Disk assembly

Fig. 8-15.

8-4-8. Removal of the Capstan Motor (See Fig. 8-16.)

1) Remove the board from the mechanism chassis, referring to 2. DISASSEMBLY 2-19.
2) Remove the two screws ❶, two springs and the washer.
3) Remove the screw ❷ and its washer.

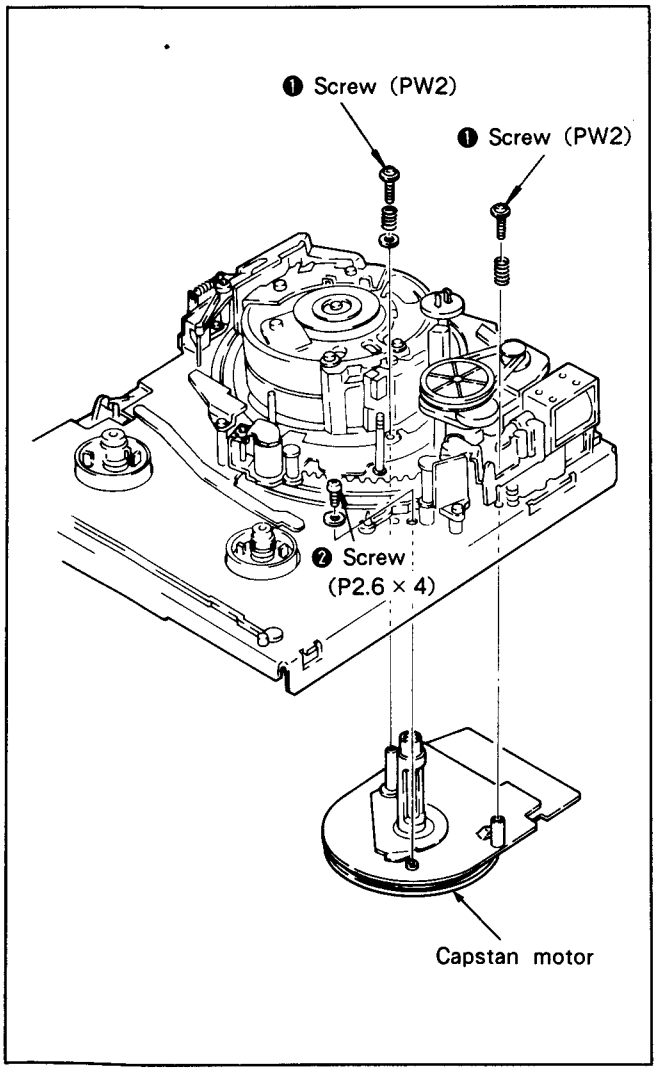


Fig. 8-16. Removal of the capstan motor

8-4-9. Capstan Shaft Verticality Adjustment (See Fig. 8-17.)

Always perform this adjustment after replacing or removing the capstan motor.

1) As shown in Fig. 8-17., place the jig (Jig. Ref. No.J-2) perpendicularly against the capstan shaft and the pinch pressure arm assembly No.10 guide sleeve.
2) Loosen the fixing screw Ⓑ.
3) Set the capstan shaft vertically by turning the adjusting screw Ⓐ.
4) Tighten the fixing screw Ⓑ to secure the capstan motor.
5) Follow the procedures in 8-5. TAPE PATH ADJUSTMENT.

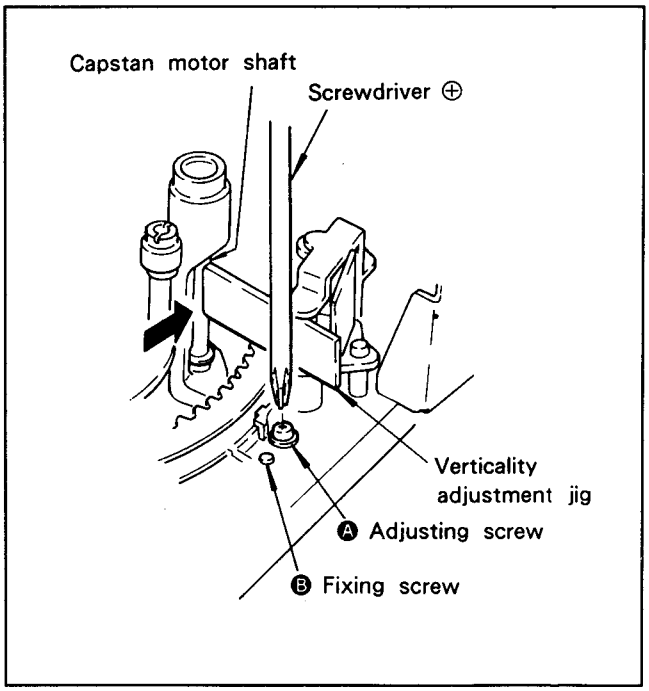


Fig. 8-17. Capstan motor shaft verticality adjustment

8-4-10. Removal of the Tension Pickup (See Fig. 8-18.)

1) Remove the spring ❶ and the claw ❷, then remove the tension pickup assembly.
2) Remove the harness from the harness clamp, then disconnect the connector.

Note : Always adjust back tension, following instructions in the section on back tension check and adjustment, after replacing or removing the tension pickup assembly.

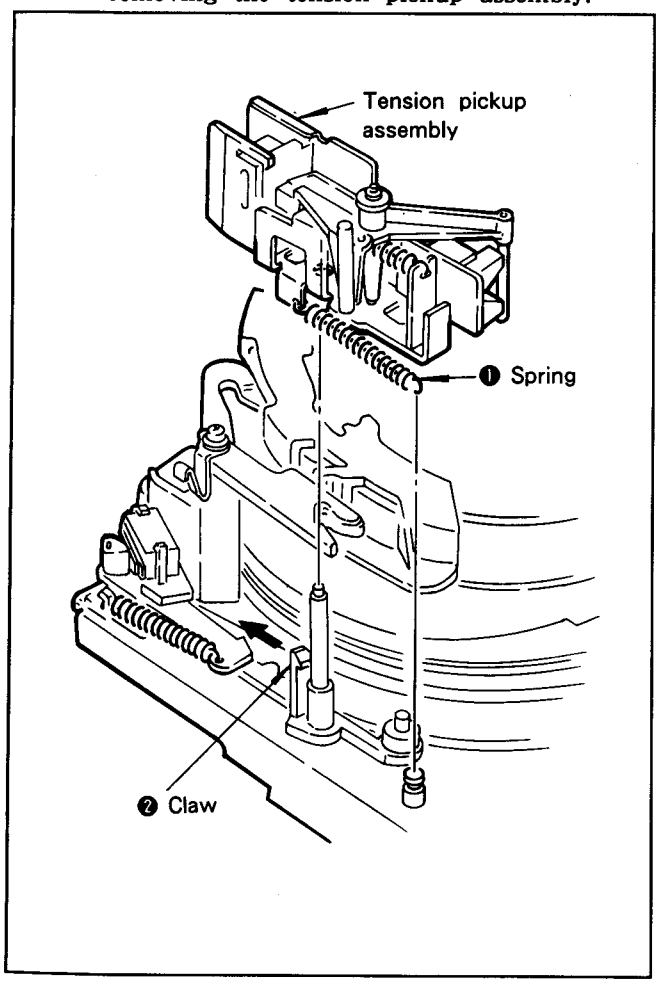


Fig. 8-18. Removal of the tension pickup

8-4-11. Removal of the Reel Motor (See Fig. 8-19.)

1) Remove the board from the mechanism chassis, referring to 2. DISASSEMBLY 2-19.
2) Remove the five mounting screws ❶ on the chassis rear, then remove the reel motor assembly ❷.

Note : The rotor section can be detached by pulling it straight up.

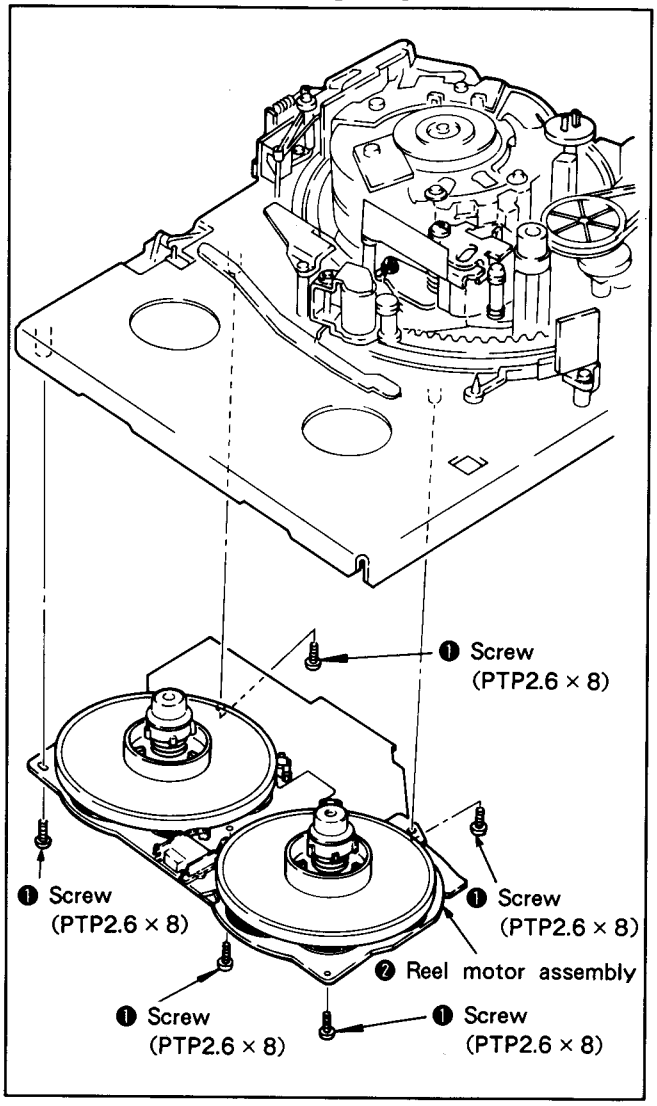


Fig. 8-19. Removal of the reel motor

8-4-12. Cassette Detection Switch Operation Check (See Fig. 8-20.)

1) Set the unthreading-completed mode manually, without threading a cassette.
   Note : This should be done with the board mounted on the mechanism chassis.
2) Confirm that the cassette detection switch in Fig. 8-20. is not turned ON (No click is heard) when pressed.
3) Push the cassette compartment lock shown in figure with a slotted screwdriver ⊖ to lock.
4) Confirm that the cassette detection switch is turned ON (A click is heard) when pressed.
5) Push the cassette compartment lock release slide plate in the direction of arrow Ⓐ, then push the lock lever assembly in the same direction and put it back to its original position.

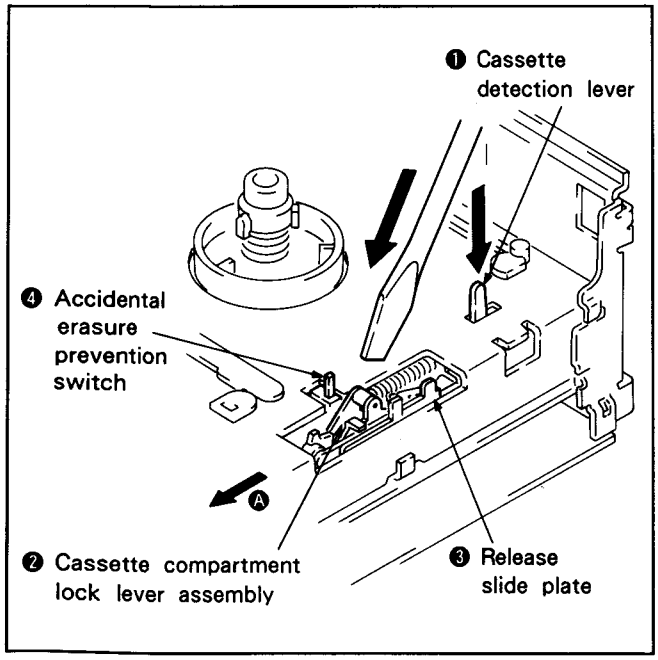

❶ Cassette detection lever
❹ Accidental erasure prevention switch
Ⓐ
❷ Cassette compartment lock lever assembly
❸ Release slide plate

Fig. 8-20. Cassette compartment lock

8-4-13. Unthreading-Completed Mode Check (See Fig. 8-21.)

1) Set the STOP mode without threading a cassette.
2) Press the EJECT button, setting the unthreading-completed mode (This condition is achieved when the T slider shaft moves slightly in the threading direction after pushing the cassette compartment lock release lever, and then stops).
3) Confirm that the ULE switch actuator is OFF, as shown in Fig. 8-21. (Turn the L motor assembly pulley slowly by hand until you hear a click). If adjustment is necessary, follow the instructions in 8-4-22.

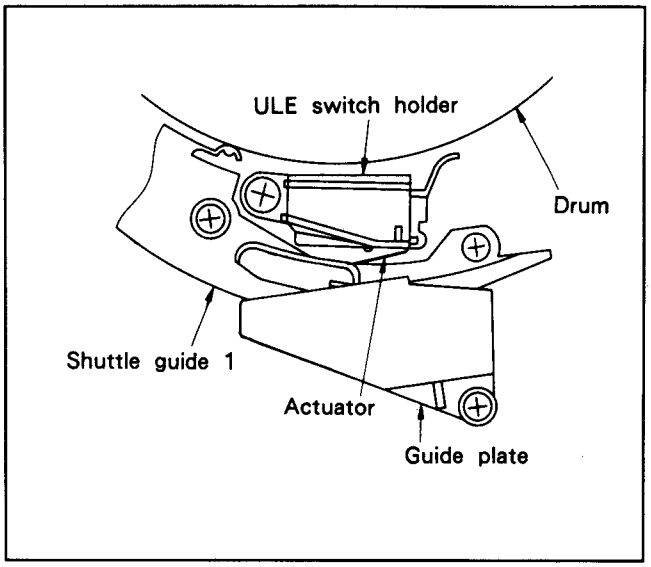


Fig. 8-21. ULE switch

8-4-14. Removal of the No.2 Guide (See Fig. 8-22.)

1) Remove the tapping screw ❶.
2) Remove the tapping screw ❷.
3) Remove the No.2 guide assembly ❸.

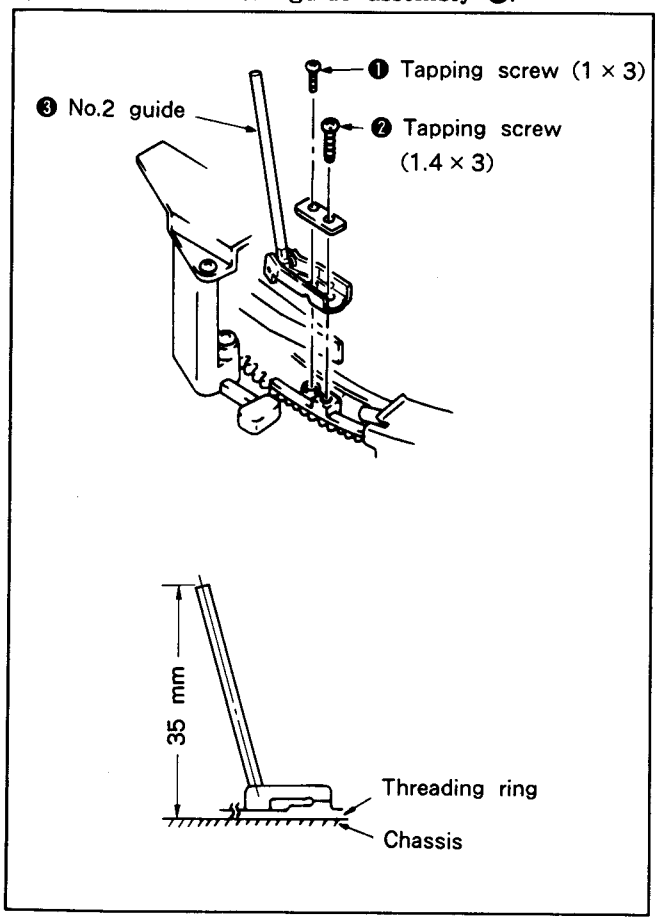


Fig. 8-22. Removal of the No.2 guide

8-4-15. Removal of the No.3 Guide (See Fig. 8-23.)

1) Remove the tapping screw ❶.
2) Remove the tapping screw ❷.
3) Remove the leaf spring retainer ❸.
4) Remove the No.3 guide assembly ❹.

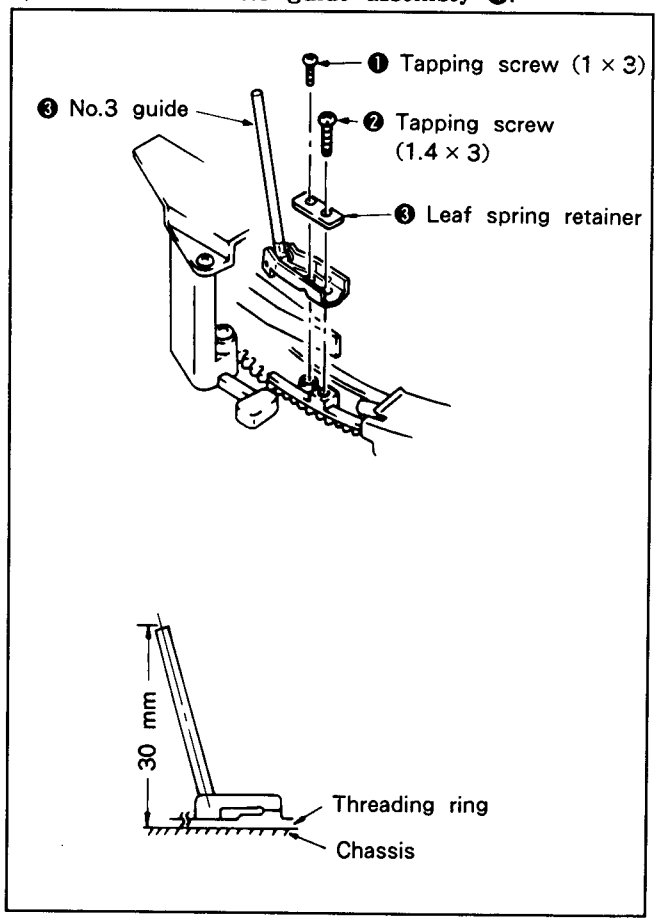


Fig. 8-23. Removal of the No.3 guide

8-4-16. Preparations to Remove the S Threading Ring

1. Removal of the ACE assembly, No.6 guide and loading motor (See Fig. 8-24.)

1) Remove the two claws ❶, then remove the roller weight ❷.
2) Remove the No.6 guide nut ❸, then remove the No.6 guide flange ❹ and the No.6 guide sleeve ❺.
3) Remove the two screws ❻, then remove the two ACE bushes ❼ and the ACE assembly ❽.
4) Remove the three screws ❾, then remove the L motor assembly ❿.
5) Remove the screw ⓫.

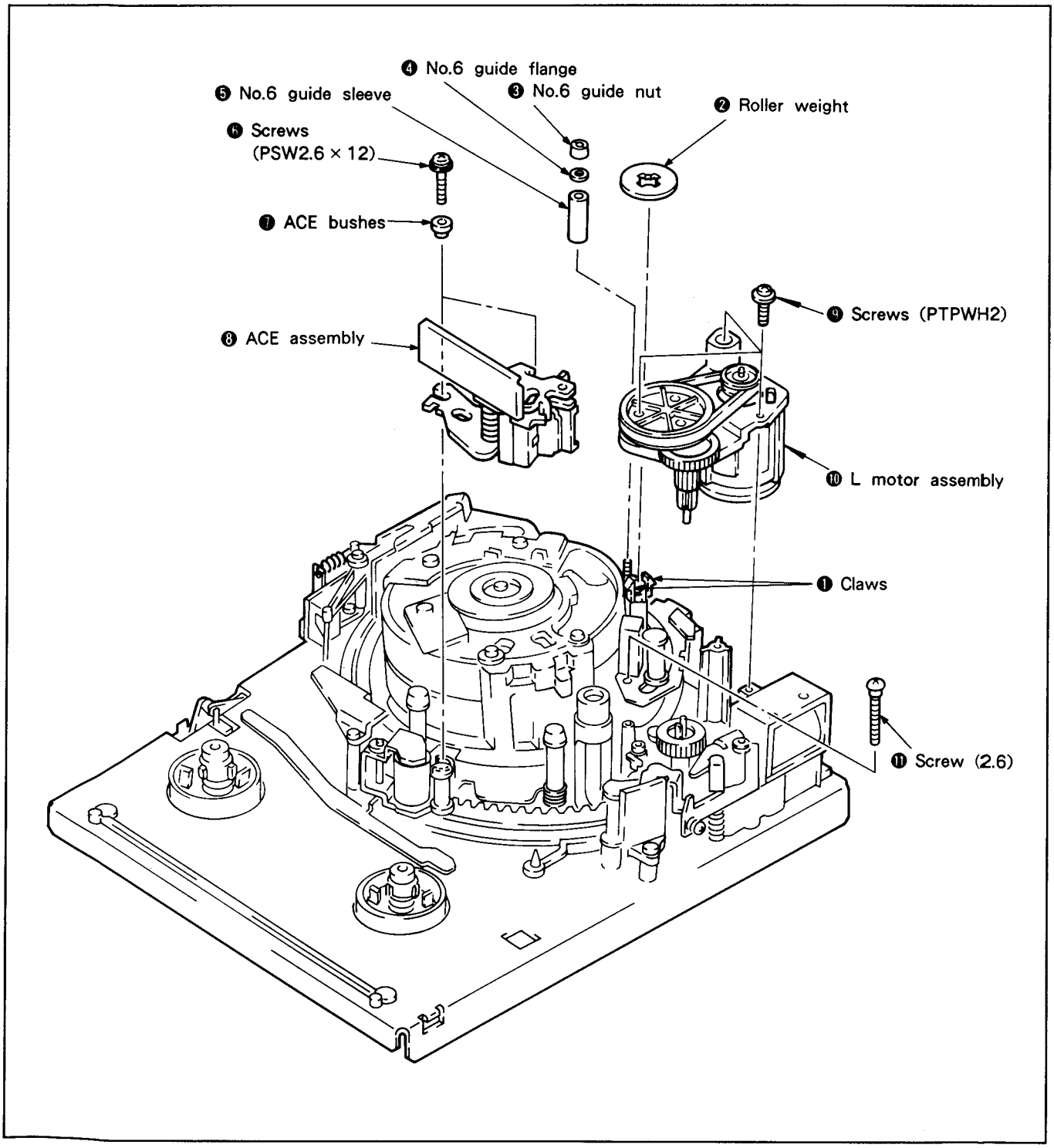


Fig. 8-24. Removal of the ACE assembly, FE head and loading motor

2. Removal of the other parts (See Fig. 8-25.)

Measure the clearance between the upper drum and the adjusting plate as explained for drum assembly replacement (See Fig. 8-10.).

1) Remove the screw ❶ then remove the tape guide grounding plate ❷, then remove the adjustment plate 3-1 ❸ and the adjustment plate 2 ❹.
2) Remove the two screws ❺, then remove the tape holder assembly ❻.
3) Remove the screw ❼, then remove the guide plate ❽.
4) Remove the two screws ❾ and the screw ❿, then loosen the screw ⓫.
5) Remove the two claws of the shuttle guide 2 ⓬, then remove the shuttle guide ⓬.
6) Remove the three screws ⓭ and the screw ⓮.
7) Remove the two claws of the shuttle guide 1-YA ⓯, then remove the shuttle guide 1-YA ⓯.
8) Remove the slant base assembly ⓰.
9) Remove the screw ⓱, then remove the pin recliner ⓲.

Note : After removing the guide plate, do not perform a threading or unthreading operation with the shuttle guide in place.

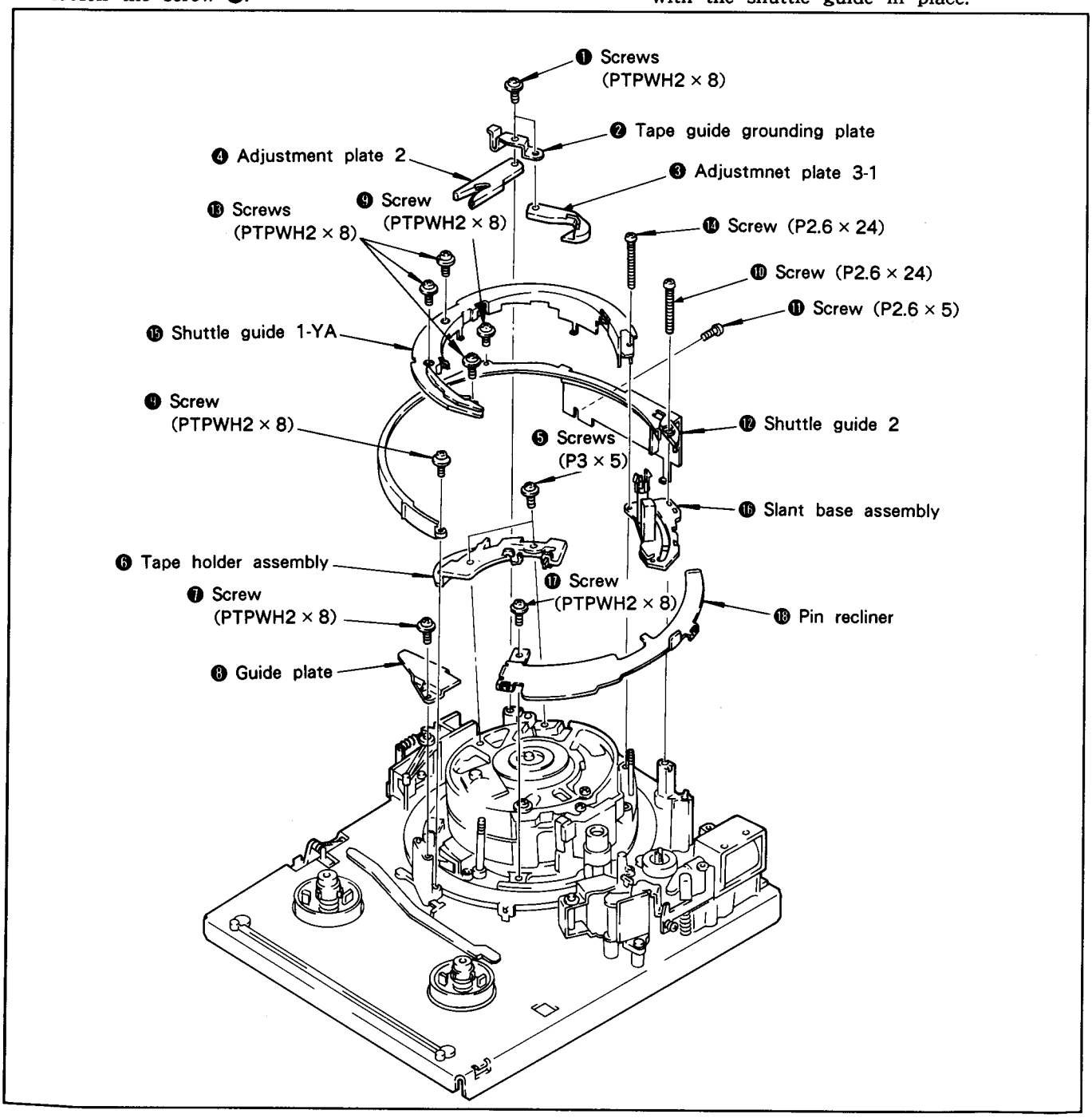

❶ Screws (PTPWH2 × 8)
❷ Tape guide grounding plate
❹ Adjustment plate 2
❸ Adjustmnet plate 3-1
❾ Screw (PTPWH2 × 8)
⓭ Screws (PTPWH2 × 8)
⓮ Screw (P2.6 × 24)
⓾ Screw (P2.6 × 24)
⓫ Screw (P2.6 × 5)
⓯ Shuttle guide 1-YA
❾ Screw (PTPWH2 × 8)
⓬ Shuttle guide 2
❺ Screws (P3 × 5)
⓰ Slant base assembly
❻ Tape holder assembly
⓱ Screw (PTPWH2 × 8)
❼ Screw (PTPWH2 × 8)
⓲ Pin recliner
❽ Guide plate

Fig. 8-25. Removal of the other parts

8-4-17. Removal of the S Threading Ring (See Fig. 8-26.)

1) Remove the drum as explained in 8-4-4. Drum Assembly Replacement.
2) Remove the lock arm assembly spring (See Fig. 8-31.).
3) Remove the two lock washers ❶, then remove the ring roller B ❷ and the ring roller C ❸.
4) Remove the ULE switch assembly (Refer to Fig. 8-35. for removal and mounting).
5) Remove the screw ❹, then remove the adjustment plate assembly ❺ and the ring roller ❻.
6) Remove the S threading ring ❼.

Note : Once removed, do not use the stop washers again.

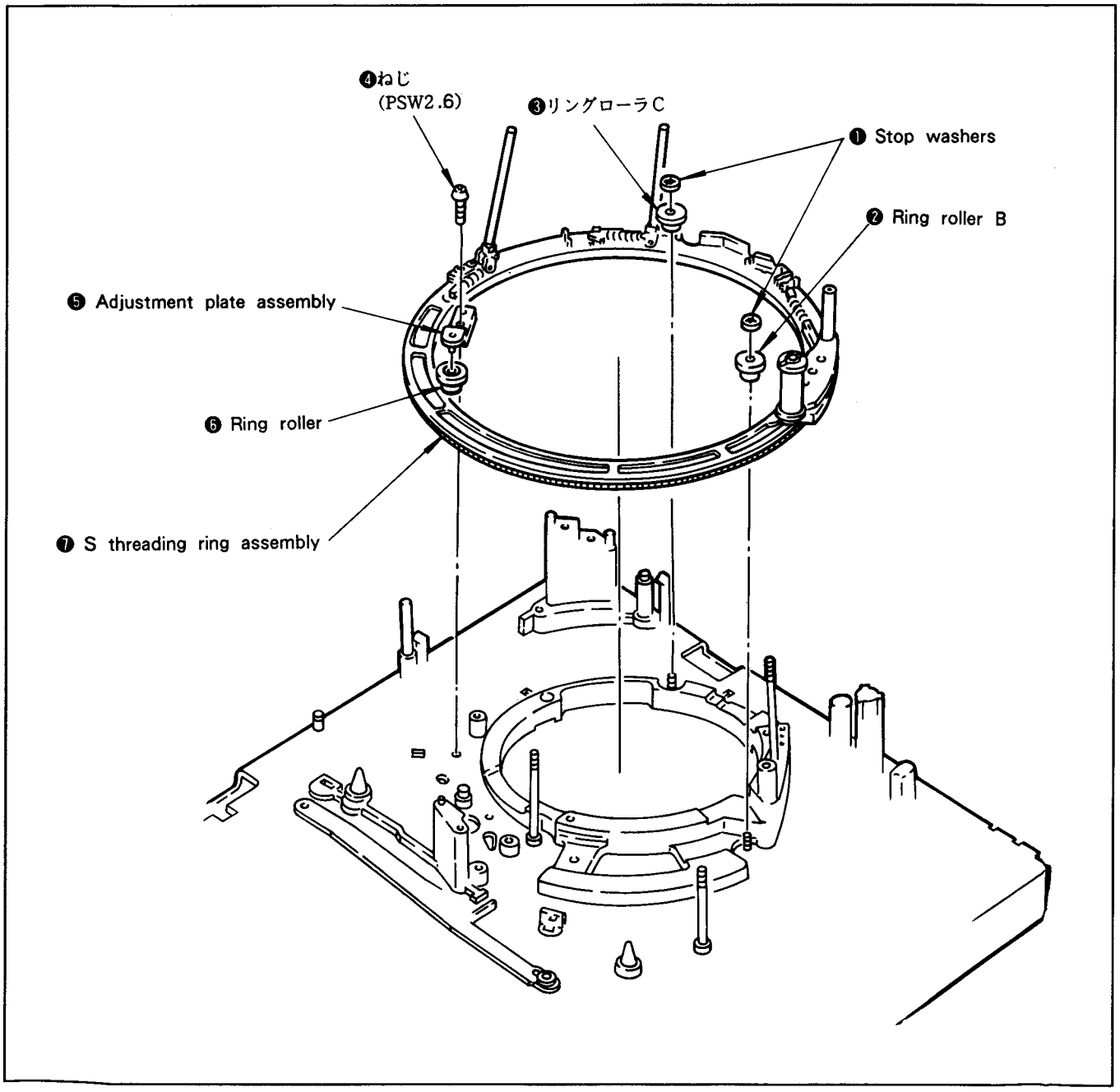


Fig. 8-26. Removal of the S threading ring

8-4-18. Slider Stopper Mounting Check (See Fig. 8-27.)

1) Confirm that the drive gear assembly ❶ is secured in place.
2) Loosen the screw ❷, insert a 0.2 mm spacer between the slider gear ❸ and the slider stopper ❹, and tighten the screw ❷ while pushing in the direction of arrows Ⓐ and Ⓑ.
   Note : Be sure to push in the Ⓐ direction to prevent play between parts. As the slider stopper will try to rotate in the Ⓑ direction, hold it with a slotted screwdriver ⊖ while tightening the screw ❷.

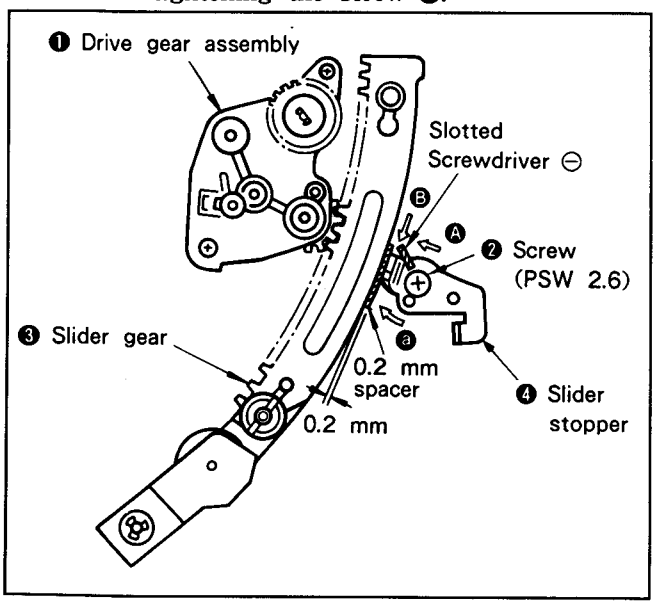


Fig. 8-27. Slider stopper mounting check

8-4-19. Replacement of the S Threading Ring (See Fig. 8-28.)

1) Mount the S threading ring.
2) Insert a 0.5 mm spacer ❶, then set the slider gear assembly ❷ to the unthreading-completed position (Parts should make contact as shown in Ⓐ in the figure with the 0.5 mm spacer ❶ inserted between the slider stopper ❸ and the slider gear assembly ❷).
3) Align the S threading ring notch with the drive gear assembly ❹ protrusion as shown in Ⓑ.
4) Engage the drive gear assembly ❹, the S threading ring and the slider gear assembly ❷, then fit them onto the chassis.
5) Confirm that the clearance between the slider gear assembly ❷ protrusion and the slider stopper ❸ at Ⓐ is approx. 0.5 mm when the S threading ring is fully rotated in the direction of arrow ❶, and that the chassis hole (3 mm diameter) is aligned with the S threading ring hole (1.5 mm diameter) at Ⓑ.
6) If both holes are not aligned, shift tooth engagement between the drive gear assembly ❹ and the S threading ring gear.

Note : After replacement or mounting, perform ACE assembly adjustment as explained in 8-5. TAPE PATH ADJUSTMENT.

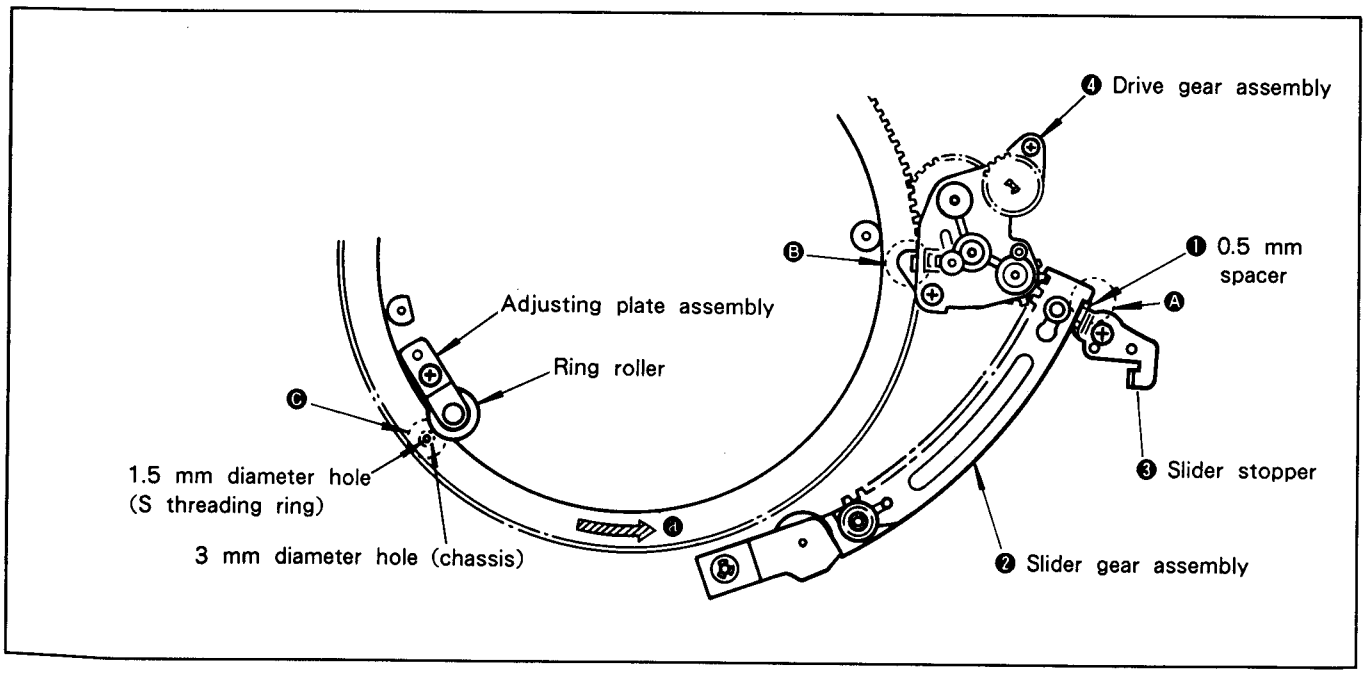


Fig. 8-28. Replacement of the S threading ring

8-4-20. Check and Adjustment of the Pinch Pressure Limiter Gap (See Fig. 8-29.)

1. Check procedure

1) Set the STOP mode without threading a cassette.
2) With the pinch solenoid ON, confirm that the clearance t (Fig. 8-29.) is within 0.3 to 0.7 mm. If it is not, proceed as follows.

2. Adjusting method

1) Turn the pinch solenoid ❶ ON.
2) Turn the adjusting screw Ⓐ until the clearance t between it and the slider stopper ❷ is within 0.3 to 0.7 mm.
3) Turn the pinch solenoid ❶ OFF and ON again, then reconfirm.

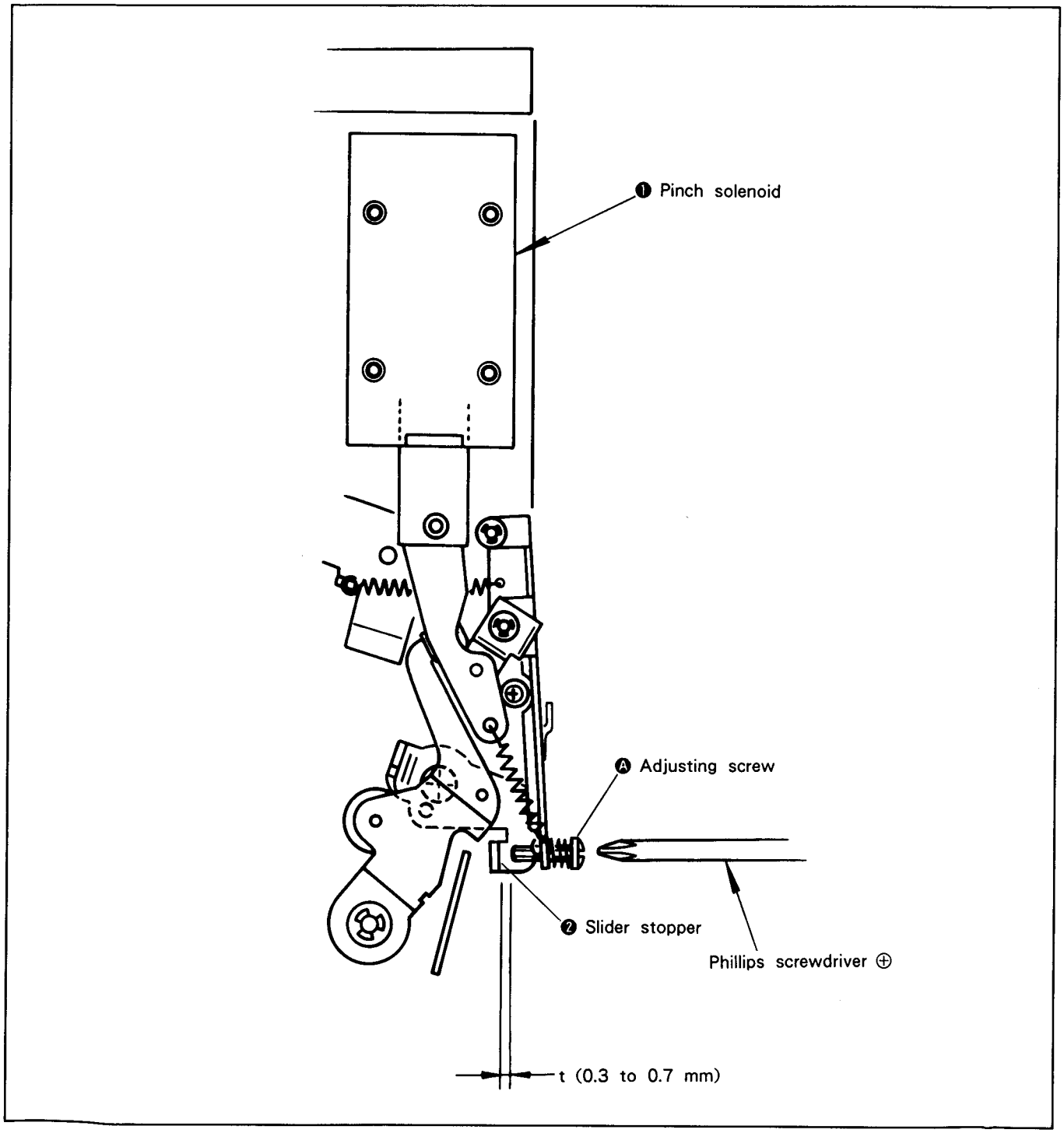


Fig. 8-29. Adjustment of the pinch pressure limiter gap

8-4-21. Check and Adjustment of the Threading End (LE) Switch Position

1. Check procedure (See Fig. 8-30.)

Rotate the S threading ring by hand, and confirm that the switch is turned ON/OFF (A click is heard) with the lock roller at a position not more than 2/3 ℓ away from the lower end of the straight section ℓ of the ring notch (See Ⓐ of Fig. 8-30.). If this condition is not fulfilled, adjust as explained below.

2. Adjusting method

1) Set the lock roller 2/3 ℓ away from the lower end of the straight section of the S threading ring notch, then turn the adjustment boss with a slotted screwdriver ⊖ until the switch is turned ON (A click is heard).
2) When adjustment is completed, confirm as explained in [Check Procedure] above.

3. Removal of the LE switch (See Fig. 8-31.)

1) Remove the screw ❶, then remove the LE switch together with the LE switch mounting plate.
2) Remove the two claws ❷, then remove the LE switch from the LE switch mounting plate.

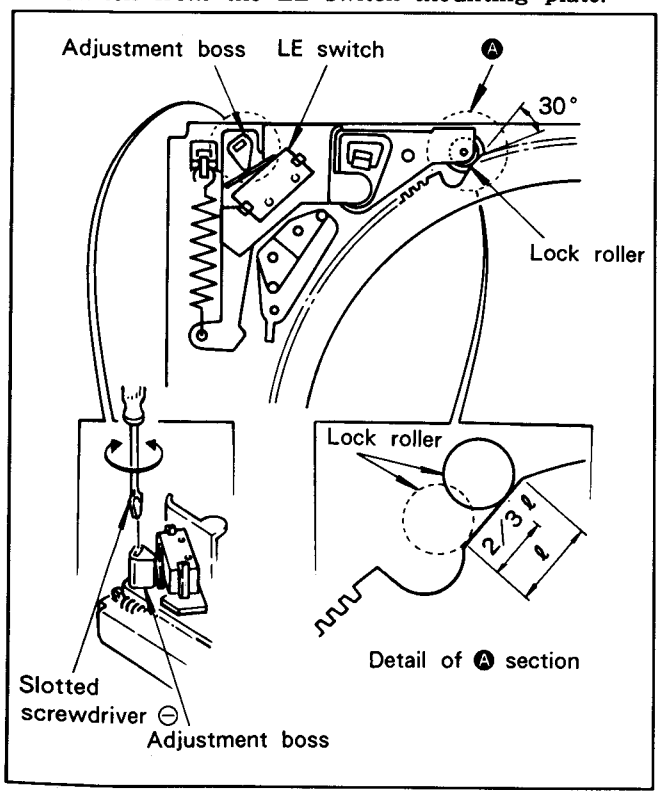


Fig. 8-30. Adjustment of the LE switch position

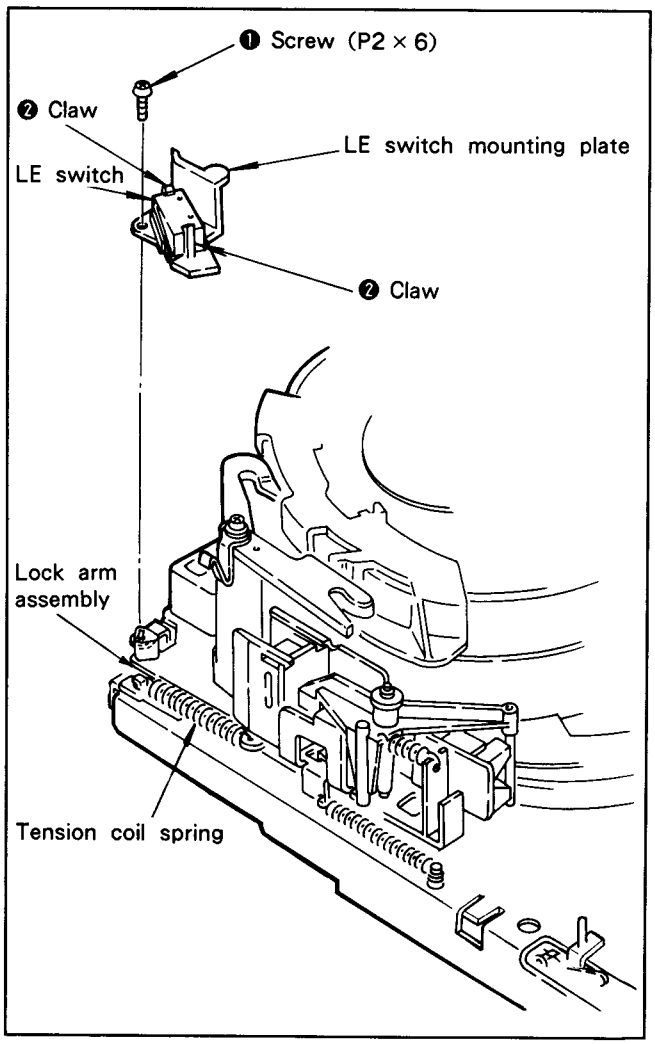


Fig. 8-31. Removal of the LE switch

8-4-22. Check and Adjustment of the Unthreading End Switch (ULE Switch) Position

1. Check procedure

Turn the S threading ring by hand until the ULE switch roller of the ULE switch arm assembly falls into the ULE switch cam groove, and confirm that the switch goes ON when inserting a 1.5 mm diameter pin in the Ⓐ clearance (Fig. 8-32.) but does not when inserting a 0.6 mm diameter pin.

2. Adjusting method

1) If the switch does not go ON when inserting a 1.5 mm diameter pin, loosen the small screw Ⓑ and adjust by moving it a little at a time in the direction of arrow.
2) If the switch goes ON when inserting a 0.6 mm diameter pin, it is because the switch actuator is bent as shown in Fig. 8-33. straighten the actuator.

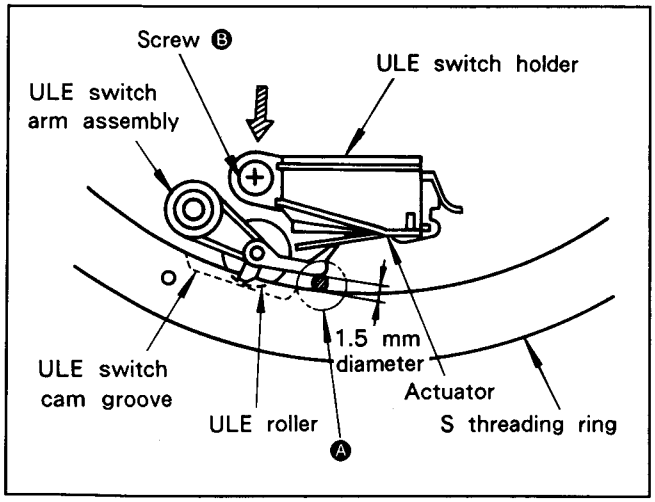


Fig. 8-32. Adjustment of the ULE switch position

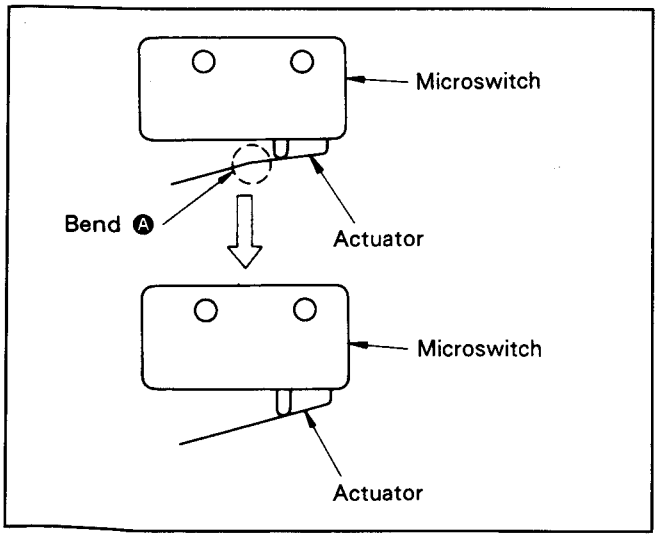


Fig. 8-33.

Note : Be sure to insert the ϕ 1.5 and ϕ 0.6 mm pins in the correct position shown in Fig. 8-34. (If inserted too close to the ULE roller, as shown in Fig. 8-34., the clearance will be narrower than 1.5 mm to the left (back) of the pin, even if it is 1.5 mm to its right (entrance)).

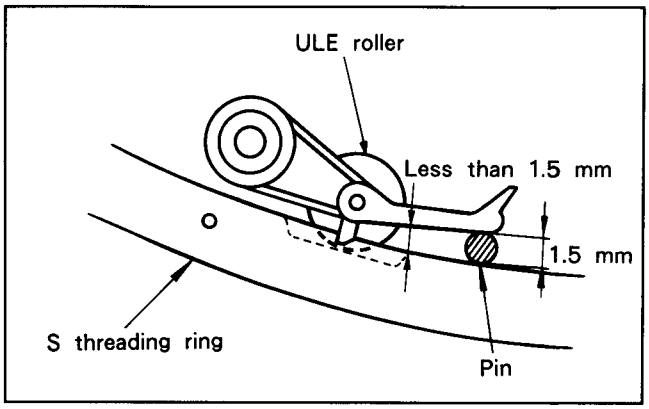


Fig. 8-34.

3. Removal

1) Remove the screw ❶ as shown in Fig. 8-35.
2) Remove the switch claws from the chassis, then remove the main unit of the switch while pressing the actuator to the ON position.

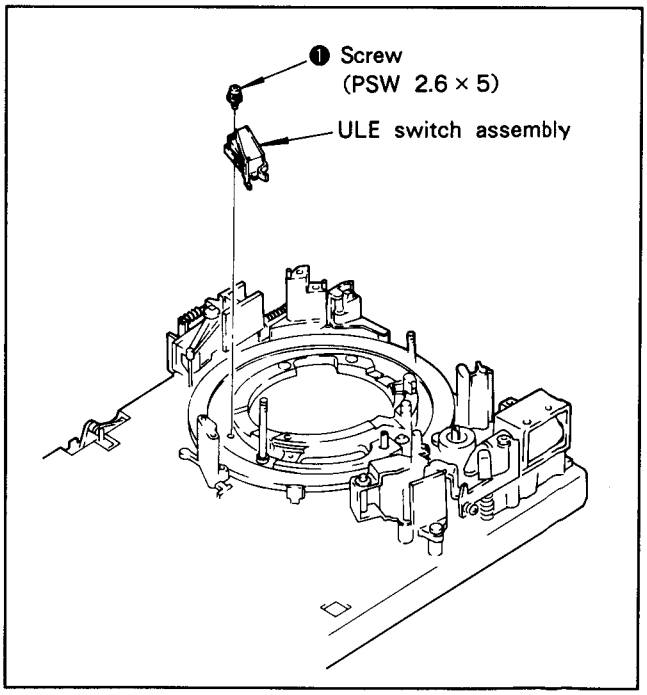


Fig. 8-35. Removal of the ULE switch

8-5. TAPE PATH ADJUSTMENT

This adjustment greatly affects picture quality in each mode, as well as cassette tape compatibility. Therefore, it must be performed with the greatest possible care.

8-5-1. Preparations for Adjustment
8-5-2. Entrance-side Tracking Adjustment
8-5-3. Exit-side Tracking Adjustment
8-5-4. Adjustment after ACE Assembly Replacement
8-5-5. Adjustment after Capstan Motor Replacement
8-5-6. Tape-shift Check after Tape Path Adjustment

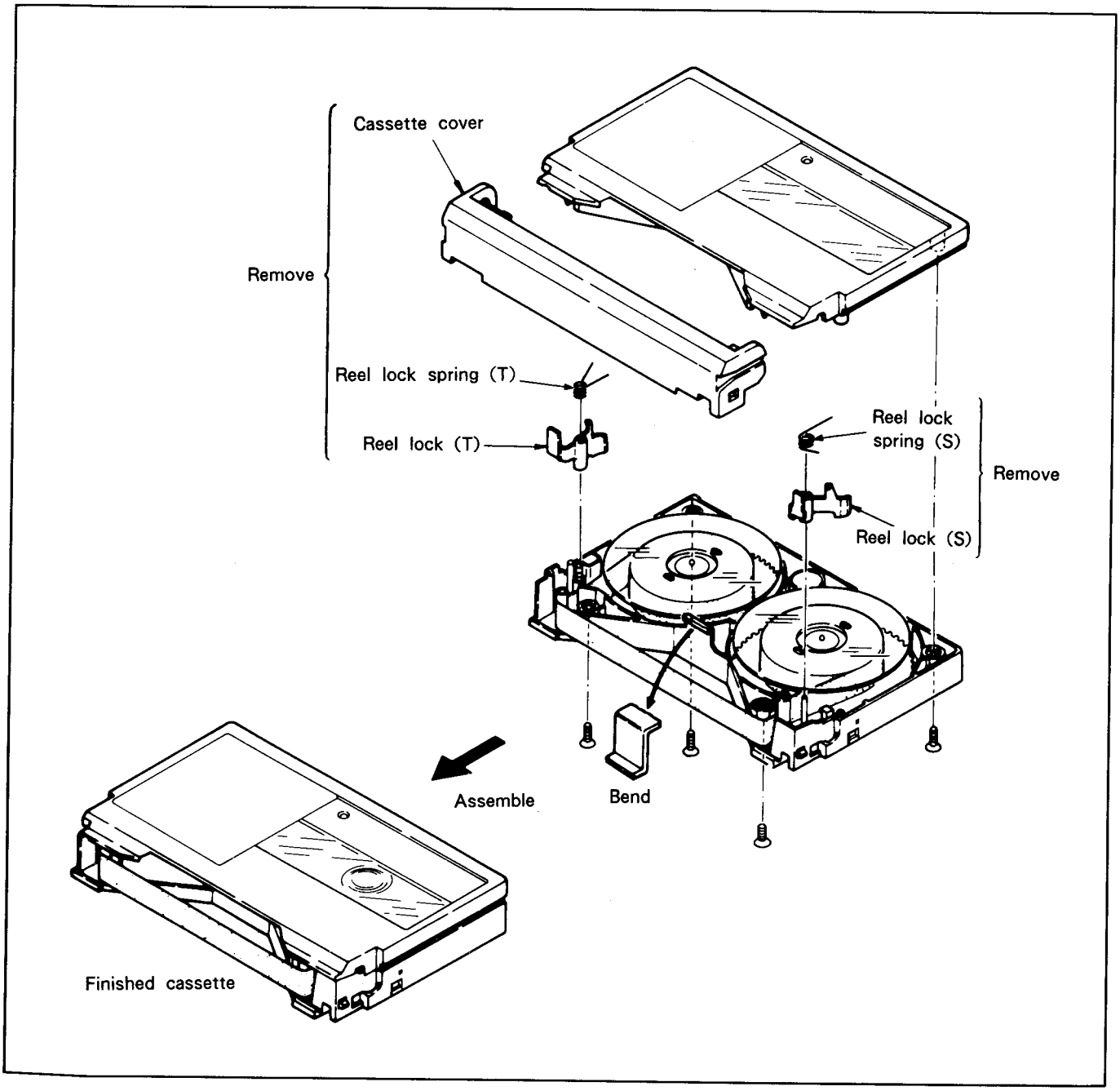


Fig. 8-36.

8-5-1. Preparations for Adjustment

Note : Pull out CN007 on the SA-26 board.

1) Remove the cover of an alignment cassette tape (KR5-1V) according to Fig. 8-36.
2) Clean the tape transport surface (Tape guides, drum surface, capstan shaft, pinch roller, ACE/FE head surface) with a chamois cloth dipped in alcohol.
3) Connect the oscilloscope as follows : Channel 1 to Pin ③ (RF out) of CN010 on the VR-19 board, and external trigger to Pin ① (RF SWP 1) of the same chip (See Fig. 8-37.).
4) Play back the 1 MHz tracking section of the alignment tape.
5) Confirm that the oscilloscope RF output waveform is flat, and that amplitude is maximum (Try turning the tracking control on both directions to increase and decrease amplitude while keeping the waveform flat). Furthermore, confirm that fluctuation (over the whole range from entrance to exit) falls within the specification in Fig. 8-38. when amplitude of the waveform of A in the same figure is set to 2/3 of the maximum level.
6) If the entrance-side waveform does not become flat when turning the tracking control, as shown in Fig. 8-39. (a), follow instructions in section 8-5-2. Entrance-side Tracking Adjustment. Likewise, if the exit-side waveform does not become flat, as shown in Fig. 8-39. (b), proceed as explained in 8-5-3. Exit-side Tracking Adjustment.

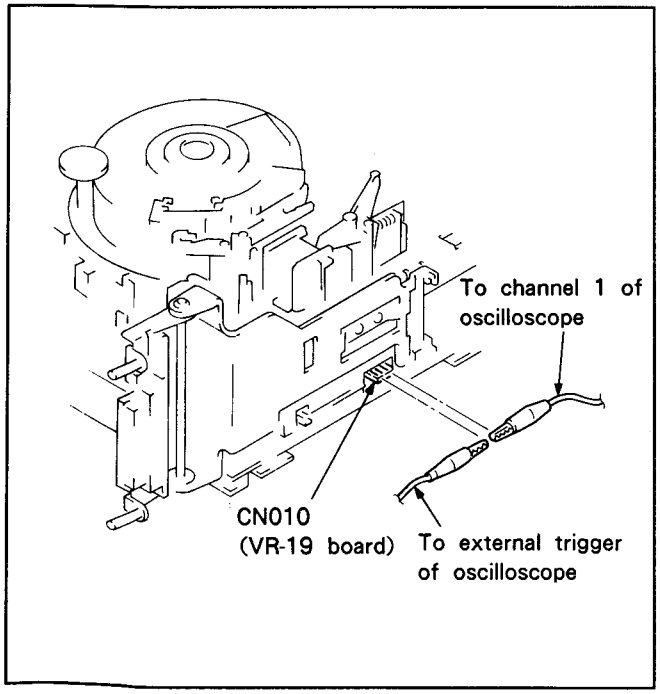


Fig. 8-37.

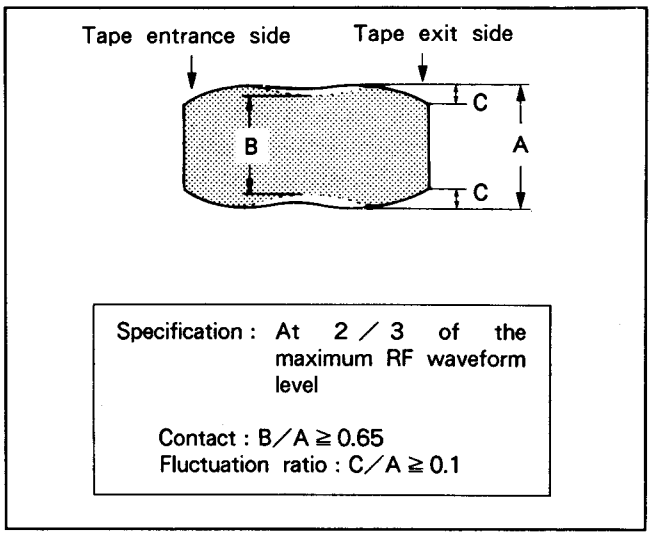


Fig. 8-38.

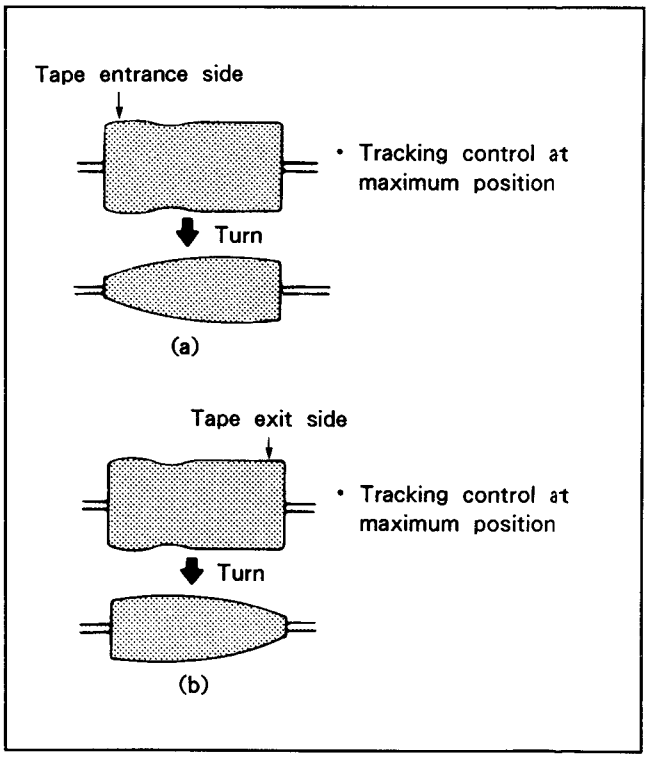


Fig. 8-39.

8-5-2. Entrance-side Tracking Adjustment

Note : Always perform exit-side tracking adjustment also after this adjustment. Tape guides and adjustment positions are shown in Fig. 8-42.

1) Referring to Fig. 8-40., remove the two claws and then remove the roller weight.
   Note : After entrance-side tracking adjustment is completed, mount the roller weight and reconfirm the RF waveform.
2) Turn the No.6 guide counterclockwise, releasing the tape from the restraint of the guide's upper flange.
3) Set waveform amplitude to about 60 % of the maximum by turning the tracking control.
4) Loosen the No.5 guide lock screw ❶ and turn the No.5 guide until the entrance-side waveform is slightly lifted from the flat level, as shown in Fig. 8-41., then tighten the No.5 guide lock screw ❶. (See Fig. 8-43.)
   Note : After tightening the No.5 guide lock screw ❶, confirm that the waveform looks as shown in Fig. 8-41.

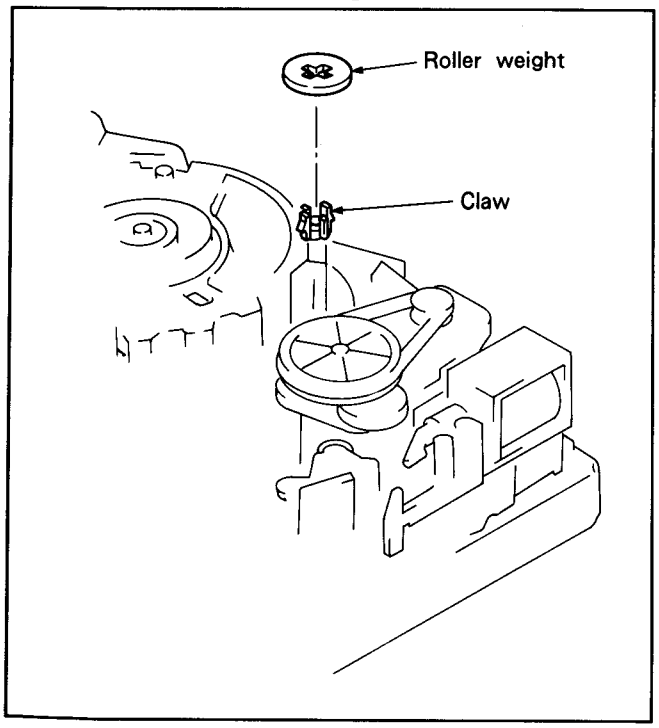


Fig. 8-40.

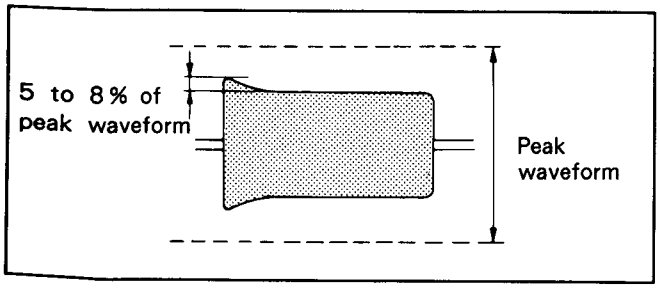


Fig. 8-41.

5) Lower the No.6 guide so that the waveform becomes flat.
6) Push down with your finger the tape between No.4 and 5 guides, lowering the entrance-side RF waveform, then confirm that it returns to its original condition.
7) In this condition, check for tape clearance and curling at the No.5 guide. If necessary, adjust according to the instructions in the respective sections below.

Notes : • Confirm that there is a proper up/down balance in tape tension between the No.3, 4 and 5 guides. If there is not, perform slant adjustment of No.3 and 5 guides.
• If the waveform in Fig. 8-41. cannot be obtained, or if it takes too much time for the waveform to return to the flat condition (or it does not return at all) after pushing the tape down at the entrance side, adjust as explained below.

[When the entrance-side waveform output does not increase]

1) Check whether up/down tension of the tape is the same between the No.3, 4, and 5 guides. If it is not, perform slant adjustment of the No.3 and 5 guides.
   Note : Confirm that there is no clearance at the No.4 guide lower flange.
2) Lift the No.4 guide lower flange, increasing entrance-side waveform output.
   Notes : • The No.4 guide lower flange may be lifted up to 0.4 mm from its lowest position (within a rotation angle of 360°).
   • If the waveform output does not increase, turn the No.5 guide slant adjusting screw counterclockwise a little.

[When the entrance-side waveform output does not decrease]

1) Detach the No.3 guide adjustment plate 3-1. from the drum, then tighten the screw ❷ just before the tape lower tension starts to weaken.
2) In case the tape is in contact with the No.4 guide lower flange, lower the flange. If there is clearance at the lower flange, perform slant adjustment of the No.5 guide to eliminate it.

[When there is clearance at the No.5 guide]
Turn the No.4 guide counterclockwise, running the tape upwards, and eliminate clearance at the No.5 guide.

Note : Confirm that no substantial curling is produced at the lower side of the No.4 guide at this time.

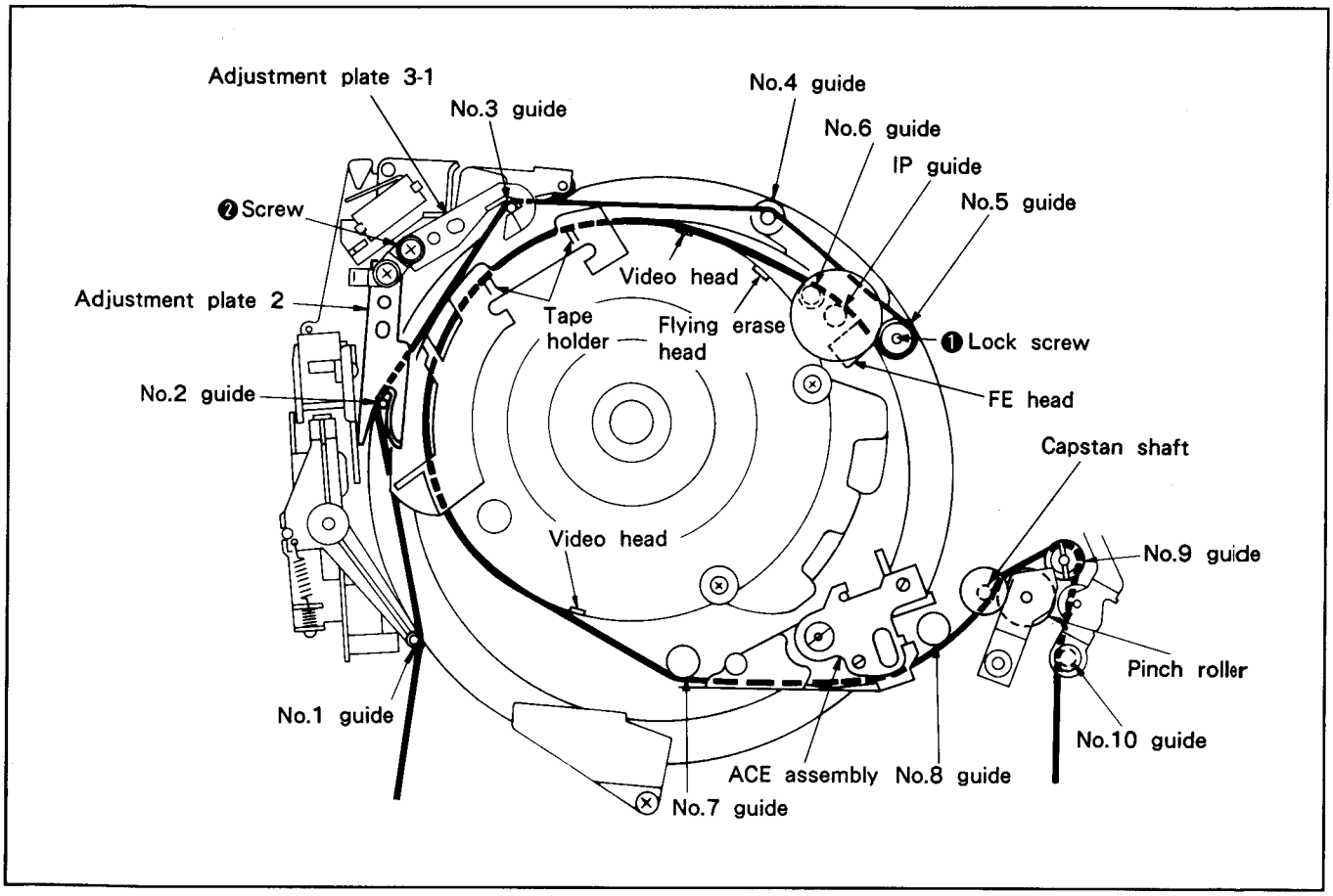
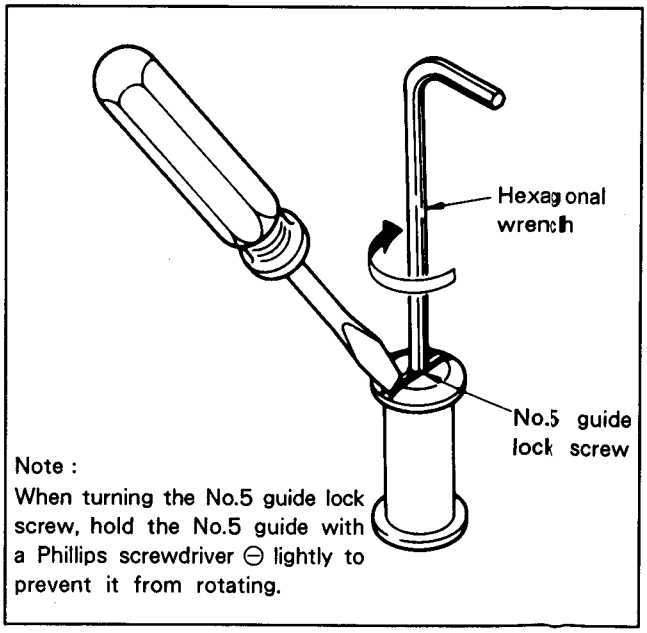


Fig. 8-42. Tape guide layout

[When curling occurs]

1) If there is a clearance at the lower side of the No.4 guide :
   Tilt the No.3 guide adjustment plate 3-1 outwards to the point just before the tape lower tension starts to weaken.
2) If there is no clearance at the lower side of the No.4 guide (and curling occurs at that place)
   i) Check whether the No.4 guide is too high. If it is too high, turn it clockwise to lower it.
   ii) If the above procedure is not enough, tighten the No.5 guide slant adjusting screw clockwise until curling is removed.



Note :
When turning the No.5 guide lock screw, hold the No.5 guide with a Phillips screwdriver ⊖ lightly to prevent it from rotating.

Fig. 8-43.

8-5-3. Exit-side Tracking Adjustment

1) Connect the oscilloscope to Pin ③ of CN010 (VR-19 board). Connect the external trigger to Pin ① of the same chip.
2) Play back the tracking section of the alignment tape (KR5-1V), and lower RF waveform output amplitude level to about 60% of the maximum by turning the tracking control.
3) Lift up the No.7 and 8 guides by turning the guide nuts counterclockwise, then observe the RF output waveform with the tape running free (This is called the exit-side free waveform).
   Note : Take care not to lift the guide up too much.
   Lift it approx. 0.2 to 0.3 mm, and be sure that the tape does not touch the ACE head lower flange (See Fig. 8-44.).

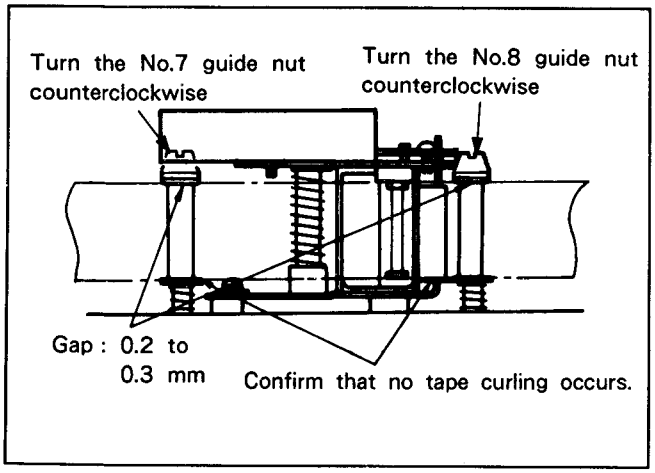

Turn the No.7 guide nut counterclockwise
Turn the No.8 guide nut counterclockwise
Gap : 0.2 to 0.3 mm
Confirm that no tape curling occurs.

Fig. 8-44.

4) At this time, confirm that the exit-side free waveform is within the range shown in Fig. 8-45. (a) and (b).
   If beyond this range, follow the instructions in 8-5-5. Adjustment after Capstan Motor Replacement.

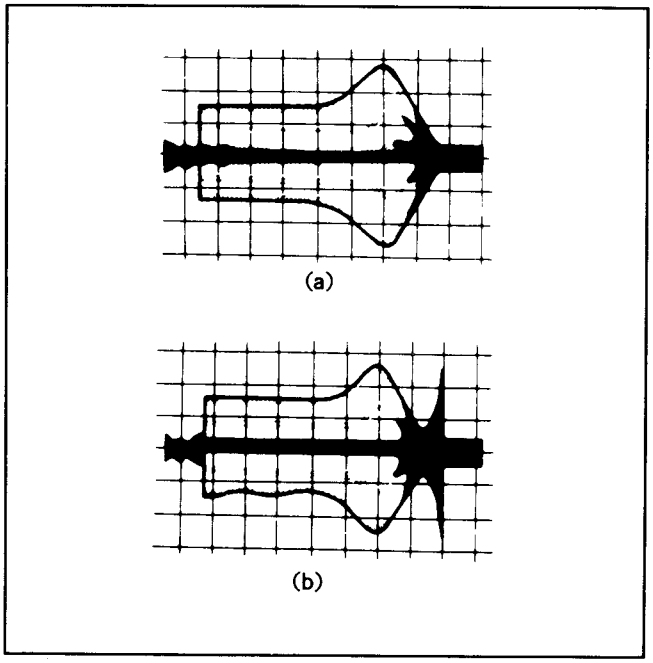


Fig. 8-45.

5) Flatten the waveform by turning the No.7 guide, then place the No.8 guide along the tape (Lower the guide until a point just before the waveform starts to change, and without curling).
   The exit-side waveform might rise slightly at this time. In this case, lower the No.7 guide again to flatten the waveform, then place the No.8 guide along the tape.
6) Confirm that no curling occurs at the No.7 and 8 guides in the forward mode.
7) Confirm that no tape rise or curling occurs at the No.8 guide in the reverse mode. If rise or curling is detected, adjust with the No.9 guide. After adjustment, screw-locked the guide nuts.

8-5-4. Adjustment after ACE Assembly Replacement

Always perform the following adjustment after the ACE assembly has been removed or replaced.

1. Exit-side tracking adjustment
2. Control head (ACE assembly) position adjustment
3. Audio head (ACE assembly) azimuth adjustment
4. Audio head (ACE assembly) height adjustment

1. Exit-side tracking adjustment

1) Place the parallel plate (SL-0657 in the jig list) as shown in Fig. 8-46., then set the audio head vertically by turning the slant adjusting screw ❶.

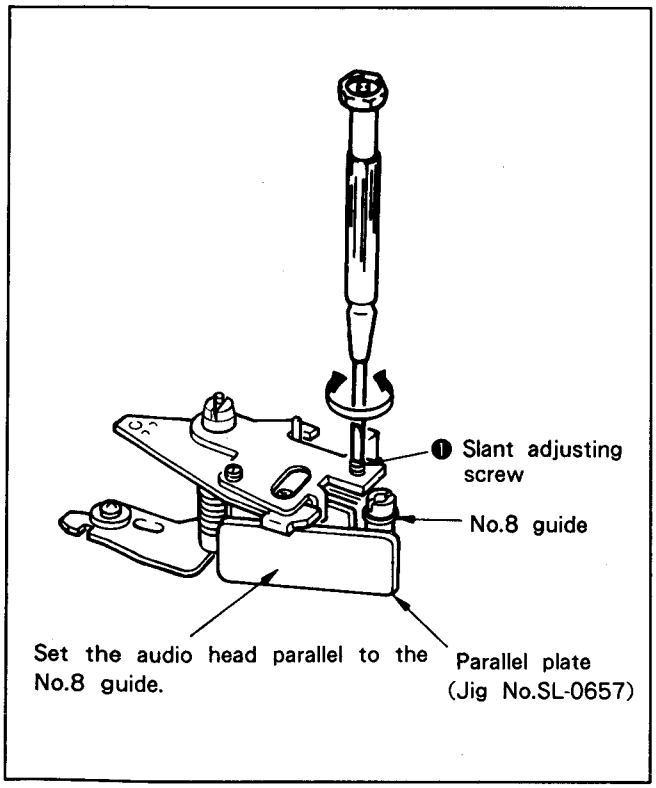


Fig. 8-46.

2) Connect the oscilloscope to Pin ③ of CN010 (VR-19 board). Connect the external trigger to Pin ① of the same chip.
3) Play back the tracking section of the alignment tape (KR5-1V), and lower RF waveform output amplitude level to about 60% of the maximum with the tracking control.
4) Lift up the No.7 and 8 guides by turning the guide nuts counterclockwise, then observe the exit-side free waveform of the RF output waveform with the tape running free.
   Note : Take care not to lift the guide up too much.
   Lift it approx. 0.2 to 0.3 mm, and be sure that the tape does not touch the ACE head lower flange.

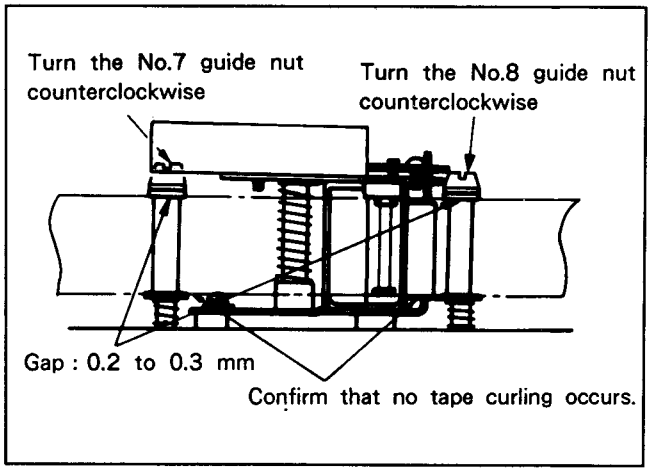

Turn the No.7 guide nut counterclockwise
Turn the No.8 guide nut counterclockwise
Gap : 0.2 to 0.3 mm
Confirm that no tape curling occurs.

Fig. 8-47.

5) At this time, confirm that the exit-side free waveform is within the range shown in Fig. 8-48. (a) and (b).

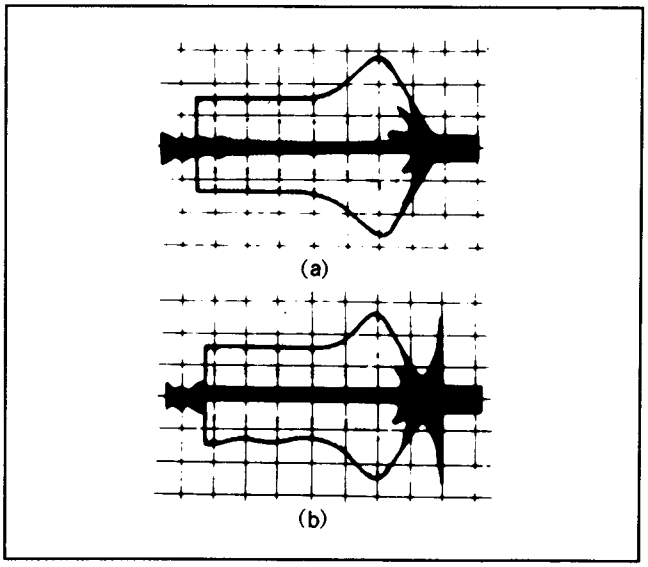


Fig. 8-48.

[When the waveform is beyond the specified range]

- If the waveform looks as shown in Fig. 8-49., turn the slant adjusting screw clockwise until the waveform falls within the specified range.
  Note : Always complete adjustment by turning the adjusting screw in the tightening (clockwise) direction.

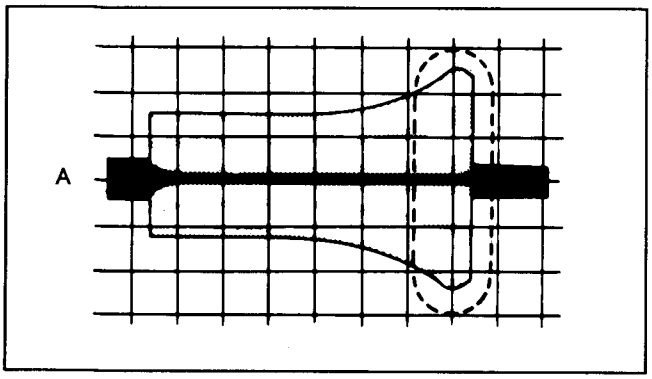


Fig. 8-49.

- If the waveform looks as shown in Fig. 8-50., turn the slant adjusting screw counterclockwise until the waveform looks as shown in Fig. 8-49. (waveform A), then turn it clockwise until the waveform falls within the specified range.
  Note : Always complete adjustment by turning the adjusting screw in the tightening (clockwise) direction.

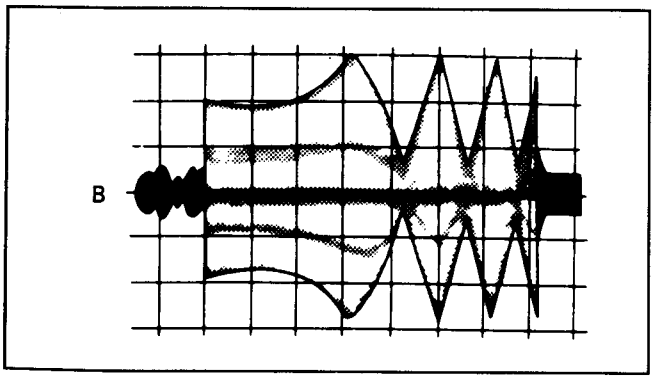


Fig. 8-50.

6) Flatten the waveform by turning the No.7 guide nut, then place the No.8 guide along the tape by turning its nut clockwise (Lower the No.8 guide until the point just before curling is produced at the No.8 guide flange).
7) In case the exit side of the RF output waveform rises, lower the No.7 and 8 guides again to flatten the waveform output.

2. Control head (ACE assembly) position adjustment

[Connection]
Oscilloscope
Channel 1 : Pin ③ of CN010 (VR-19 board)
Channel 2 : Audio line output terminal
External trigger : Pin ① of CN010 (VR-19 board)

[Adjusting method]
1) Play back the tracking signal section of the alignment tape.
2) Confirm that the RF output waveform amplitude is maximum, and that the audio signal 0 level position appears at the B-channel waveform of the tracking center position.
   If these specifications are not satisfied, follow step 3).

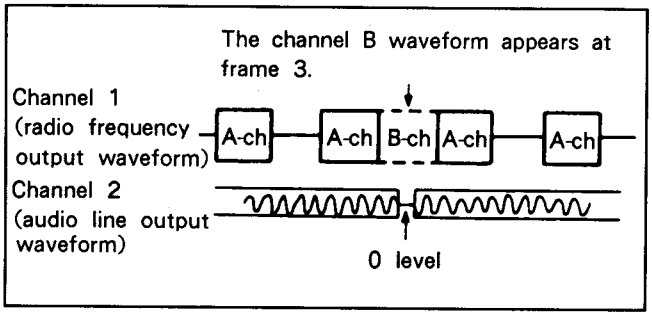


Fig. 8-51.

3) Control head position adjustment
   (1) Set to the tracking center position.
   (2) Loosen the two ACE assembly position adjusting screws, then slide the ACE assembly with a slotted screwdriver ⊖ until the RF output waveform amplitude becomes maximum (Fig. 8-52.).
   (3) Play back the alignment tape color-bar signal and check picture quality.
   (4) Tighten the position adjusting screws and screw-lock them.

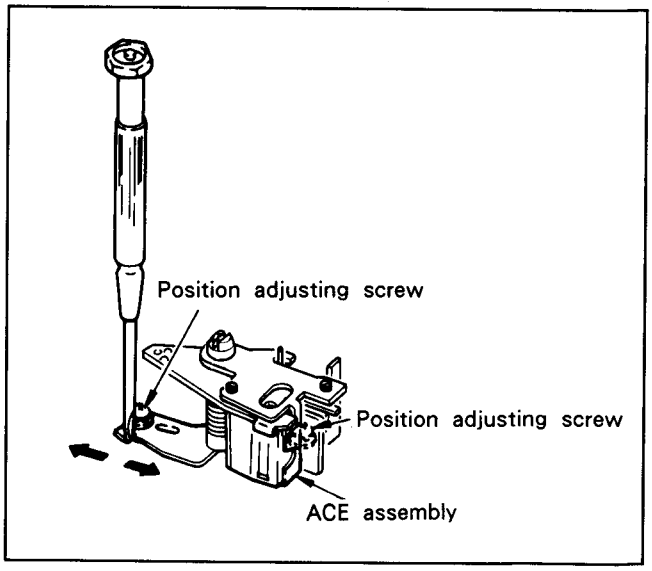


Fig. 8-52.

3. Audio head (ACE assembly) azimuth adjustment

[**Connection**]
Oscilloscope Channel 1 : Audio line output terminal

[**Adjusting method**]
1) Play back the 7 kHz, −30 dB audio signal section (RF sweep) of the alignment tape.
2) Turn the azimuth adjusting screw until the output level (level meter reading) becomes maximum.
   Note : Complete this adjustment in the tightening (clockwise) direction of the azimuth adjusting screw.
3) Screw-lock the azimuth adjusting screw after adjustment is completed.

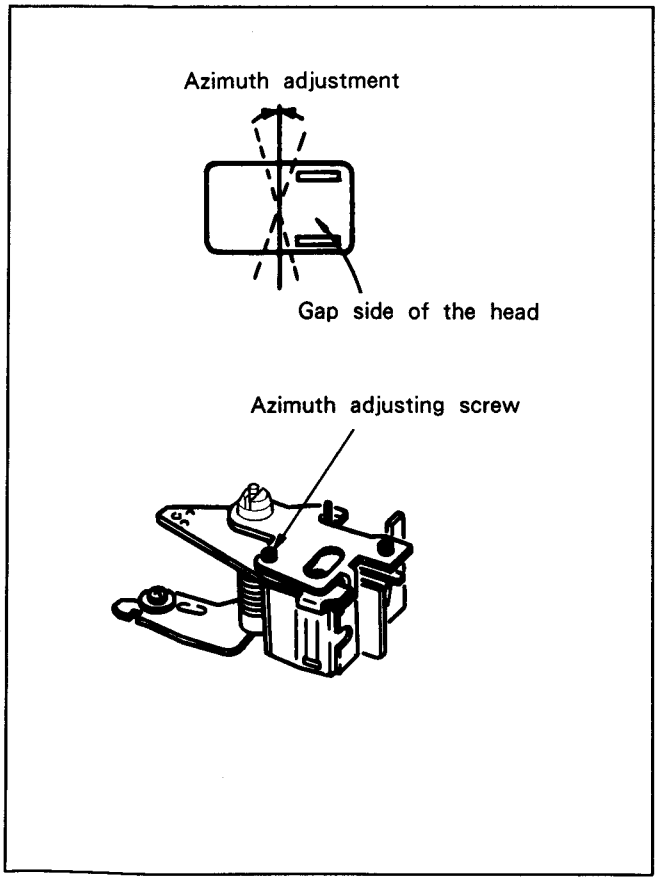


Fig. 8-53.

4. Audio head (ACE assembly) height adjustment

[**Condition**]
Before performing this adjustment, complete exit-side tracking adjustment.

[**Connection**]
Oscilloscope Channel 1 : Audio line output terminal

[**Adjusting method**]
1) Play back the 7 kHz, −30 dB audio signal section (RF sweep) of the alignment tape.
2) Turn the height adjusting screw until the audio line output waveform (7 kHz) amplitude becomes maximum.

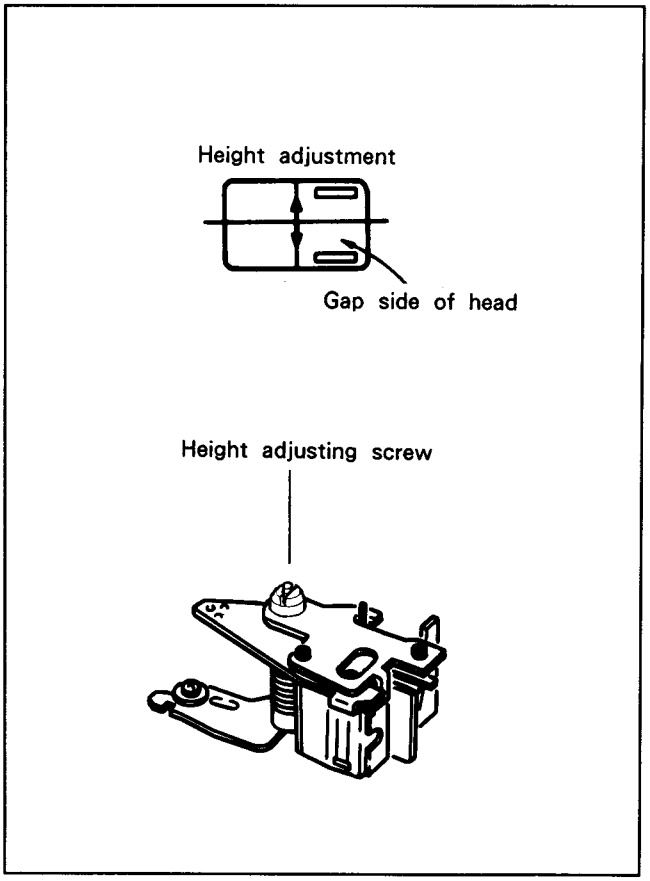


Fig. 8-54.

8-5-5. Adjustment after Capstan Motor Replacement

1) Remove and replace the capstan motor following the instructions in 8-4-8. Capstan Motor Removal.
2) Play back the tracking section of the alignment tape (KR5-1V).
   Connect the oscilloscope as follows :
   Channel 1 ·····Pin ③ of CN010 (VR-19 board)
   Channel 2 ·····Pin ① of CN010 (VR-19 board)
3) Lower the RF output waveform to about 60% of the maximum level by turning the tracking control clockwise.
4) Lift up the No.7 and 8 guides a little and observe the exit-side free waveform.
   i) If the exit-side free waveform is within the range shown in Fig. 8-55. (a) and (b), proceed to step 5).

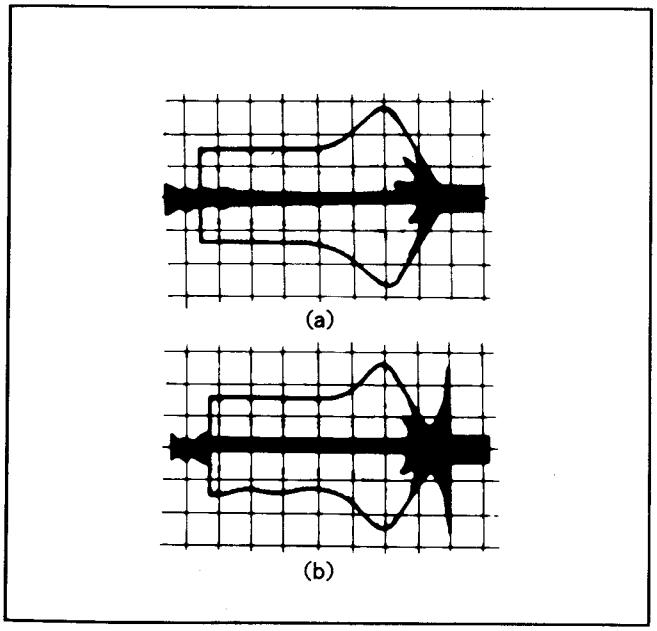


Fig. 8-55.

   ii) If the exit-side free waveform peak is smaller than that in Fig. 8-55. (a) (example : Fig. 8-56.), loosen the capstan lock screw and turn the adjusting screw counterclockwise until the waveform falls within the range shown in Fig. 8-57. (a) and (b).

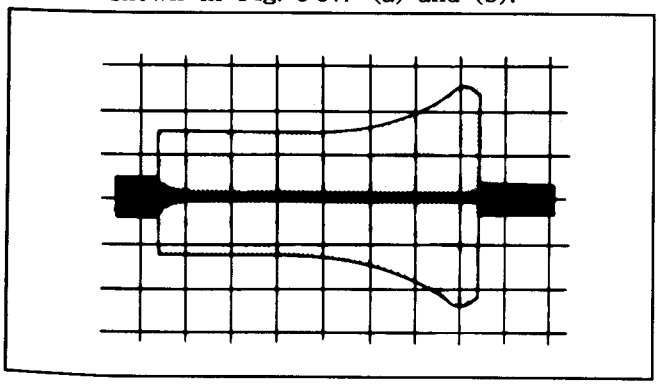


Fig. 8-56.

   iii) If the exit-side free waveform peak is larger than that in Fig. 8-55. (b) (example : Fig. 8-57.), loosen the lock screw and turn the capstan adjusting screw clockwise until the waveform falls within the range shown in Fig. 8-55. (a) and (b).

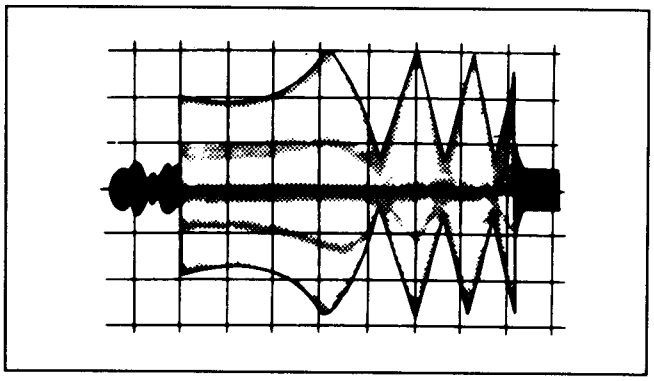


Fig. 8-57.

Note : After turning the capstan adjusting screw, wait for 10 to 15 seconds until the waveform is stabilized before proceeding to the next adjustment.

5) Tighten the capstan lock screw (Turn it clockwise until it hits the surface below, then turn it some 30° more). At this time, the exit-side free waveform will change slightly. If it goes beyond the range in Fig. 8-55. (a) and (b), goes back to step 4).
6) Flatten the waveform by turning the No.7 guide, then place the No.8 guide along the tape. If the exit-side waveform rises, flatten it with the No.7 guide and place the No.8 guide along the tape again.
7) Confirm and adjust following the instructions in 8-5-3. Exit-side Tracking Adjustment, step 5).

8-5-6. Tape-shift Amount Check after Tape Path Adjustment

After following the tape path adjustment procedures in 8-5-1. to 8-5-5., check tape shift mount as explained below.

1) Provide yourself with a L-830 reel (commercially available). Remove the cassette cover as shown in Fig. 8-36.
2) Play back the L-830 tape and check the following items.
   (1) Entrance side
   Confirm that the tape is not bent in a way that can damage it at the lower flange of the No.4 guide, the upper flange of the No.5 guide or the upper flange of the No.6 guide (Curling is tolerable, but bending is not) (See Fig. 8-58.).
   (2) Exit side
   Confirm that the tape is not bent in a way that can damage it at the upper flange of the No.7 guide, the upper flange of the No.8 guide or the upper or lower flange of the No.10 guide (Curling is tolerable, but bending is not) (See Fig. 8-59.).
3) If tape is not running properly at step 2), readjust tape path as follows.
   a) The tape does not run properly at the entrance side.
   Refer to 8-5-2. Entrance-side Tracking Adjustment.
   b) The tape does not run properly at the exit side.
   Refer to 8-5-3. Exit-side Tracking Adjustment.

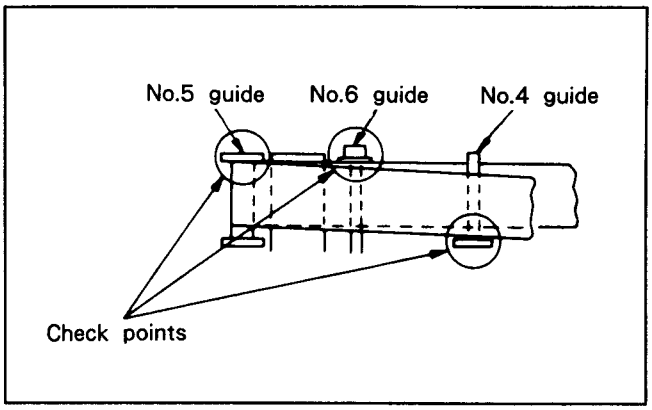


Fig. 8-58.

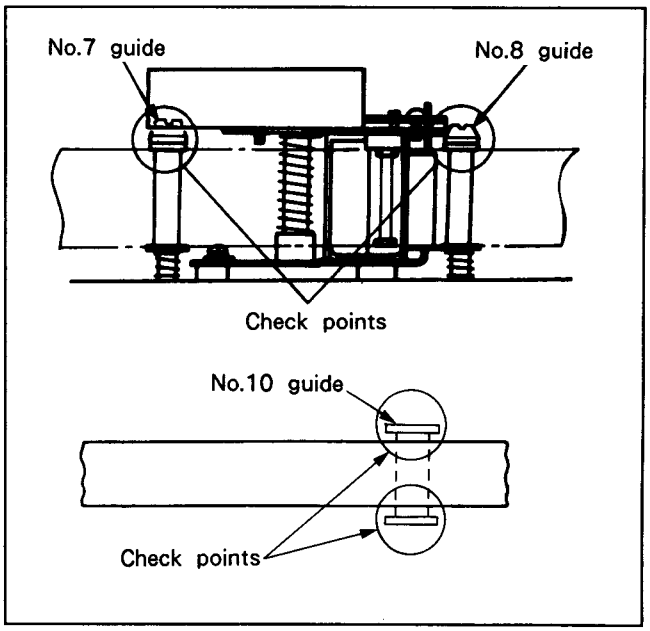


Fig. 8-59.

SECTION 9
VIDEO BLOCK ADJUSTMENT

When adjusting, refer to the adjustment-related parts layout diagrams from page 296.

The measuring devices listed below are required for video section adjustment.

[Required devices]

1) Monitor TV
2) Dual-trace oscilloscope, 15 MHz band or above, w/delay mode (use a 10 : 1 probe unless otherwise specified)
3) Frequency counter
4) Pattern generator (with Y/C separation output terminal)
   * When using a pattern generator not equipped with Y/C separation output terminal, connect its video output to a VCR (EDV-7300/7500, EDV-9300/9500, etc.) provided with an S video output terminal, and connect the unit to be adjusted to this terminal as shown in Fig. 9-1.
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply (current capacity 4A and over)
11) Alignment tape
    For ED Beta (KR5-2ED)
    Part code : 8-192-533-01
    Note : KR5-1ED is also available.

[Connection]

Remove the camera block, and connect measuring devices as shown below.

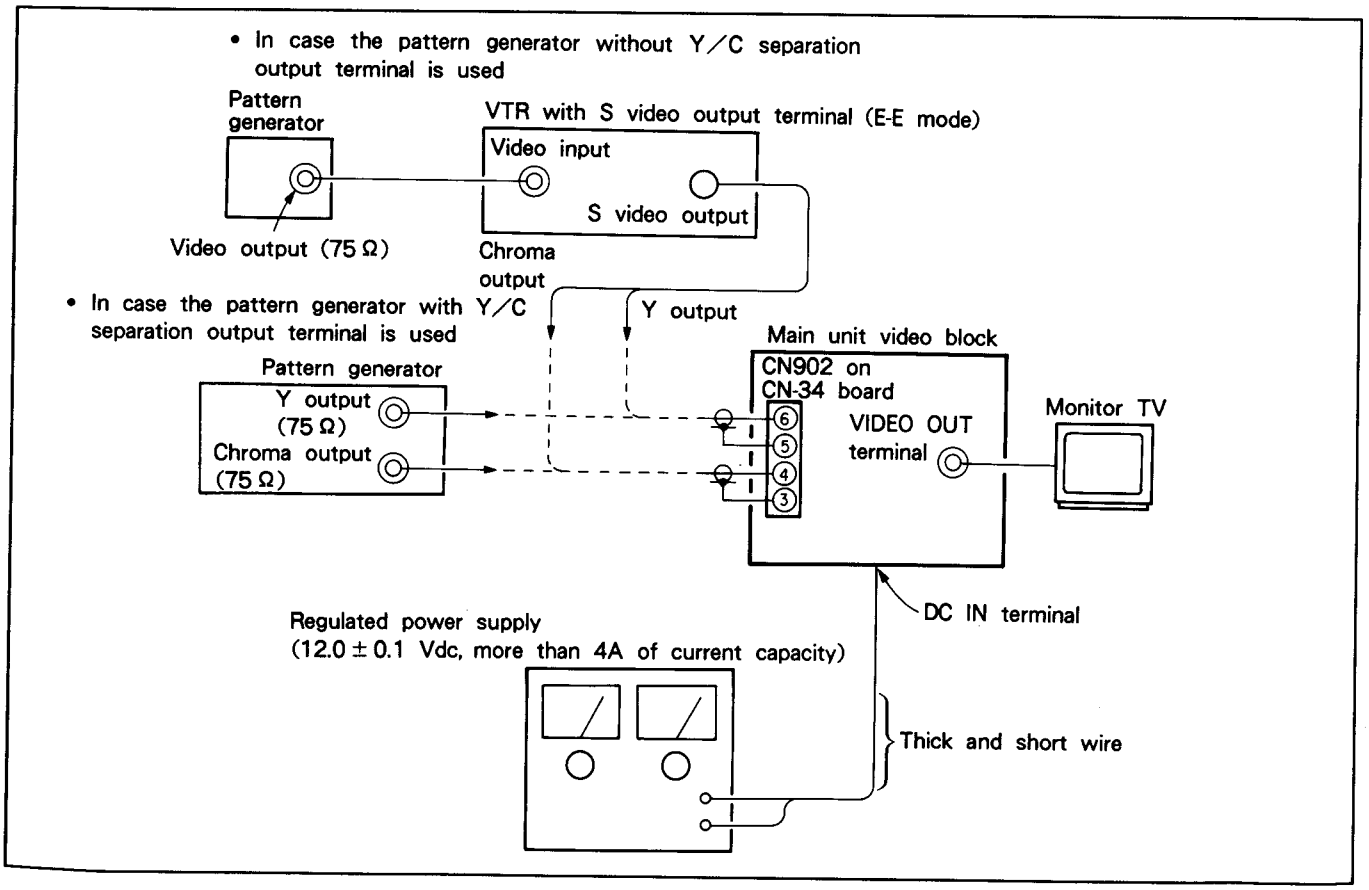

• In case the pattern generator without Y/C separation output terminal is used
Pattern generator
VTR with S video output terminal (E-E mode)
Video input
S video output
Video output (75 Ω)
Chroma output
• In case the pattern generator with Y/C separation output terminal is used
Y output
Main unit video block
CN902 on CN-34 board
Pattern generator
Y output (75 Ω)
Chroma output (75 Ω)
VIDEO OUT terminal
Monitor TV
DC IN terminal
Regulated power supply
(12.0 ± 0.1 Vdc, more than 4A of current capacity)
Thick and short wire

Fig. 9-1.

[Setup for adjustment]

Since the Y and chroma signals from a NTSC pattern generator are used as adjustment signals for adjusting the video block, these signals must be within the specifications. Connect the oscilloscope to the Y signal input terminal (Pin ⑥ of CN902 on the CN-34 board) and confirm that the sync signal of the Y signal is approx. 0.3 Vp-p, and that amplitude of the video section is approx. 0.7 Vp-p (when using a VCR with S video output terminal, also confirm that there are no residual chroma or burst signals). Then, connect the oscilloscope to the chroma signal input terminal (Pin ④ of CN902 on the CN-34 board) and confirm that the burst signal of the chroma signal is approx. 0.3 Vp-p in amplitude and flat. Also confirm that the amplitude ratio between the burst signal and the whole chroma signal is 0.30 : 0.66. Y and chroma signals used for adjustment are shown in Fig. 9-2.

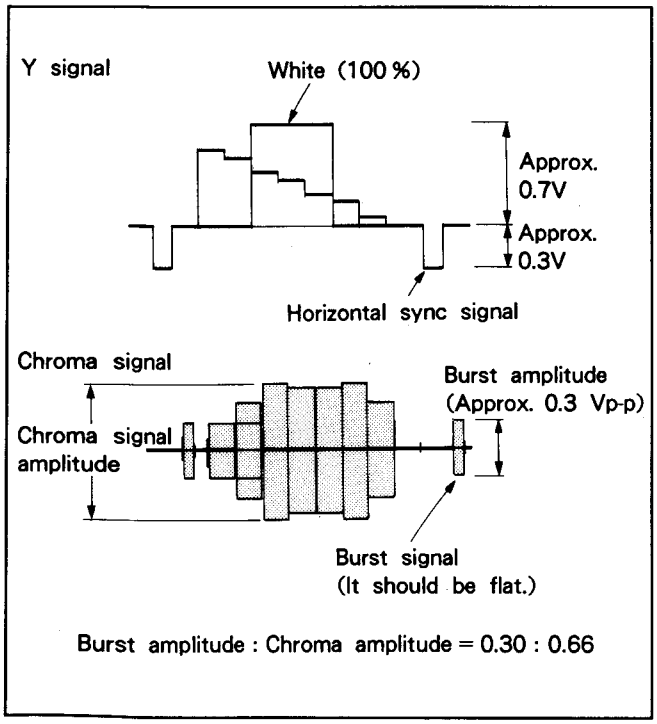


Fig. 9-2. Color bar signal of pattern generator

[Alignment tape]

	Mode	Video signal	Audio signal			Time
			Normal	Beta hi-fi		
				Lch	Rch	
1	βII	Color bar	333Hz −30dB	400Hz −10dB	1kHz −10dB	5 minutes each
2		Monoscope	7kHz −30dB			
3		RF sweep	3kHz −10dB			
4	βIII	Color bar	333Hz −30dB	400Hz −0dB	1kHz −10dB	
5		Monoscope	5kHz −30dB			

The 75% color bar signal recorded on the alignment tape is shown in Fig. 9-3.

Note : Measured at the video output terminal (terminated at 75 Ω)

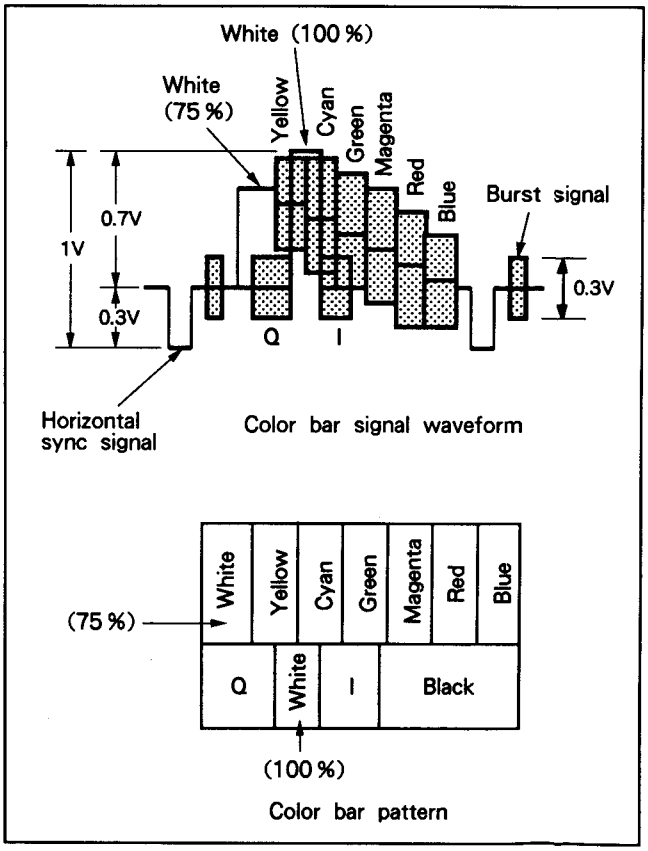


Fig. 9-3. Color bar signal of alignment tape

[Input/output level and impedance]

Video input 32-pin connector
Luminance signal (Pin (B14)) :
1 Vp-p, 75 Ω unbalanced, negative sync
Chroma signal (Pin (B15)) :
0.286 Vp-p, 75 Ω unbalanced

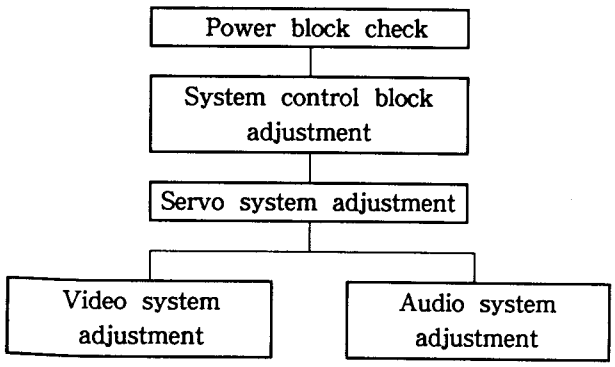
Video output 1 pin jack
Output signal :
1 Vp-p, 75 Ω unbalanced, negative sync

S video output (4 pin mini DIN)
Luminance signal :
1 Vp-p, 75 Ω unbalanced, negative sync
Chroma signal :
0.286 Vp-p, 75 Ω unbalanced

Audio input 32-pin connector
(Left channel : Pin (B8),
Right channel : Pin (A9))
Input level :
− 10 dBs (0 dBs = 0.775 Vrms)
Input impedance : 47 kΩ and over

Audio line output 1 pin jack
Specified output :
− 10 dBs (250 mV), when 47 kΩ load
Load impedance :
10 kΩ and over

[Adjusting order]
Follow the adjusting order below.



9-1. POWER BLOCK CHECK (SA-26 BOARD)

Mode	E-E
Measuring Instrument	Digital voltmeter
μCOM 5V Check	
Measurement Point	Pin ⑤ of W001
Specified Value	5.0 ± 0.5 Vdc
EVER 5V check	
Measurement Point	Pin ④ of W001
Specified Value	5.0 ± 0.2 Vdc
REG 5V check	
Measurement Point	Pin ② of CN025
Specified Value	5.0 ± 0.2 Vdc
REG 7.7V Check	
Measurement Point	Pin ② of W001
Specified Value	7.7 ± 0.2 Vdc
REG 9V check	
Measurement Point	Pin ① of W001
Specified Value	9.2 ± 0.2 Vdc
LINCS DC OUT check	
Measurement Point	Pin ② of CN032
Specified Value	8.0 ± 0.2 Vdc

Checking method :
1) Turn the POWER switch (JK-35 board) ON.
2) Confirm that all voltages are within the specifications.

9-2. SYSTEM CONTROL ADJUSTMENT

9-2-1. Character Position Adjustment (SA-26 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ① (Y OUT) of CN008 on VR-19 board
Measuring Instrument	Oscilloscope
Adjusting Element	CT301
Specified Value	4.8 ± 0.5 μsec

Connection :

1) Ground TP702 (Pin ㊸ of IC701, $\overline{\text{TEST}}$) on the AD-14 board with a jumper wire to set the test mode.

Adjusting method :

1) Adjust to 4.8 ± 0.5 μsec with CT301.

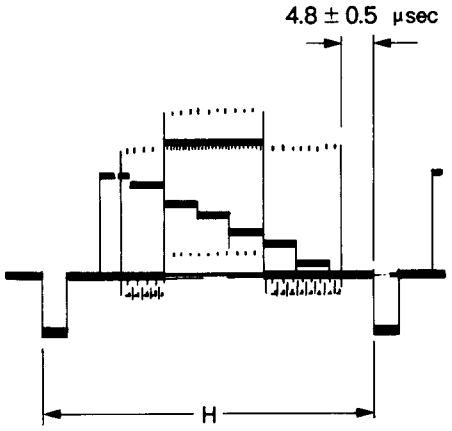


Fig. 9-4.

9-2-2. Flying Erase Check (SA-26 Board)

Mode	Video insert
Measurement Point	Pin ① of CN017
Measuring Element	Oscilloscope and frequency counter
Specified Value	Oscillation frequency : Approx. 8 MHz Oscillation level : Approx. 10 Vp-p

Note : Connect the frequency counter through a high-input resistance (about 10 MΩ) and low capacity (10 pF and less) probe.

Checking method :

1) Confirm that oscillation frequency is approx. 8 MHz and oscillation level approx. 10 Vp-p.

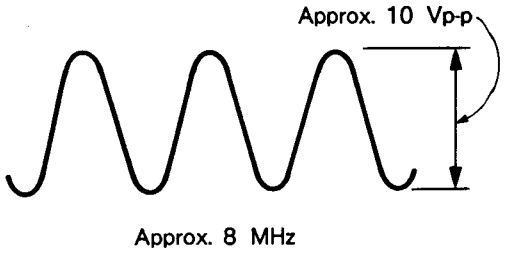


Fig. 9-5. Flying erase confirmation

9-2-3. Battery End Detection Level Adjustment (SA-26 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin (B6) (REC ALARM) of 32-pin connector on CN-34 board
Measuring Instrument	Oscilloscope (DC range)
Adjusting Element	RV301
Specified Value	Pulse output period should minimize.

Connection :

1) Connect a digital voltmeter to CN801 on the JK-35 board as shown below.

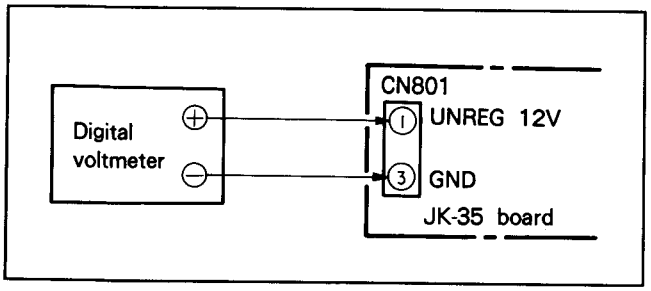


Fig. 9-6.

Adjusting method :

1) Connect Pin ③ (ADJ MODE) of CN034 to Pin ④ (GND) with a jumper wire to set the adjustment mode.
2) Turn power OFF and ON again.
3) Adjust the output voltage of the regulated power supply so that voltage at Pin ① of CN801 on the JK-35 board becomes 10.90 ± 0.05 Vdc.
4) Turn RV301 slowly, and stop at the point where period of the REC ALARM terminal output pulse is minimum.
5) Detach the jumper wire.

9-2-4. Battery Check Meter Adjustment (AD-14 Board)

Mode	E-E
Measurement Point	Check with battery check meter (R channel level meter)
Measuring Instrument	
Adjusting Element	RV701
Specified Value	Meter should indicate the center

Connection :

1) Connect a digital voltmeter to CN801 on the JK-35 board as shown below.

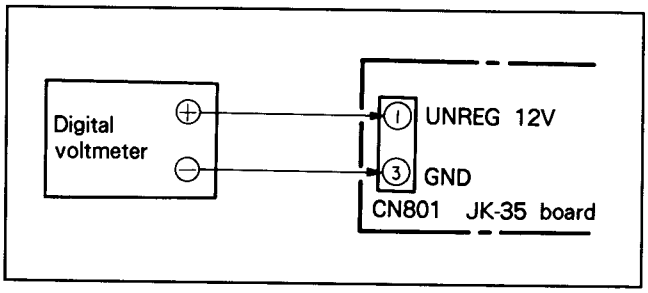


Fig. 9-7.

Adjusting method :

1) Adjust the output voltage of the regulated power supply so that voltage at Pin ① of CN801 becomes 11.63 ± 0.02 Vdc.
2) Adjust RV701 so that the battery check meter (level meter of the right channel) indicates "10" when the BATTERY CHECK button (S706 on the AD-14 board) is pressed.

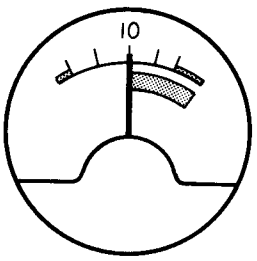


Fig. 9-8.

9-2-5. Clock Precision Adjustment (AD-14 Board)

Measurement Point	TP703 (Pin ㊾ of IC701 : CLK OUT)
Measuring Instrument	Frequency counter
Adjusting Element	CT701
Specified Value	2048 ± 0.0125 Hz

Adjusting method :

1) Set a lithium battery into the lithium battery holder (JK-35 board).
2) Ground TP702 (Pin ㊸ of IC701) with a jumper wire to set the adjustment mode.
3) Turn the power switch (JK-35 board) OFF.
4) Adjust to 2048 ± 0.0125 with CT701.
5) Detach the jumper wire.

2048 ± 0.0125 Hz

Fig. 9-9.

9-3. SERVO SYSTEM ADJUSTMENT

9-3-1. Reel Servo System Adjustment

1. FF/REW speed adjustment (SA-26 board)

Mode	FF
Signal	Center position of L500 tape (Position where equally much tape is wound around T reel and S reel.)
Measurement Point	Pin ⑦ (F-V OUT) of CN034
Measuring Instrument	Digital voltmeter
Adjusting Element	RV003
Specified Value	4.3 ± 0.2 Vdc

Adjusting method :

1) Adjust to 4.3 ± 0.2 Vdc with RV003.

2. FWD back tension adjustment (SA-26 board)

Mode	Playback
Signal	Center position of L500 tape recorded by β II mode (Position where equally much tape is wound around T reel and S reel.)
Measurement Point	Pin ③ of CN004 (S *Vs*)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV001
Specified Value	0.85 ± 0.05 Vdc

Adjusting method :

1) Adjust to 0.85 ± 0.05 Vdc with RV001.

9-3-2. Drum/Capstan Servo System Adjustment

1. RF switching position adjustment (SA-26 board)

Mode	Recording
Signal	Arbitrary
Measurement Point	CH1 : Pin ⑨ (RF SW PULSE) of CN026 CH2 : Pin ② (PG B) of CN002
Measuring Instrument	Oscilloscope
Adjusting Element	RV002
Specified Value	750 ± 30 μsec

Adjusting method :

1) Ground Pin ③ (ADJ MODE) of CN034 with a jumper wire to set the adjustment mode.
2) Adjust phase difference (Ta or Tb) between the falling (⌐) or rising (⌐) edge of the RF switching pulse and the PG B pulse to 750 ± 30 μsec, by turning RV002.
3) Detach the jumper wire.

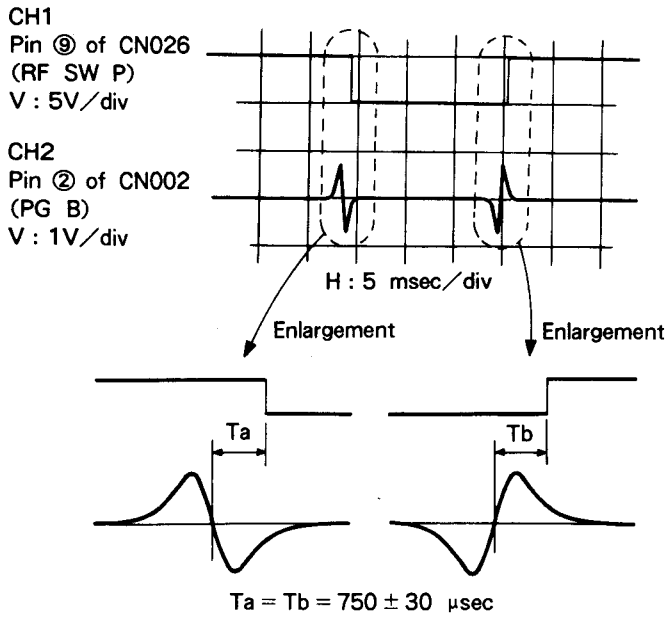


Fig. 9-10.

2. Tracking center adjustment (FU-64 board)

Mode	Playback
Signal	Alignment tape βII color bar
Measurement Point	CH1 : Pin ⑤ (REC CTL) of CN034 on SA-26 board CH2 : Pin ⑥ (PB CTL) of CN034 on SA-26 board
Measuring Instrument	Oscilloscope
Adjusting Element	RV502
Specified Value	0 ± 100 μsec

Adjusting method :

1) Set the TRACKING control (RV501 on the FU-64 board) to the center click position.
2) Adjust phase difference between REC CTL and PB CTL to 0 ± 100 μsec with RV502.

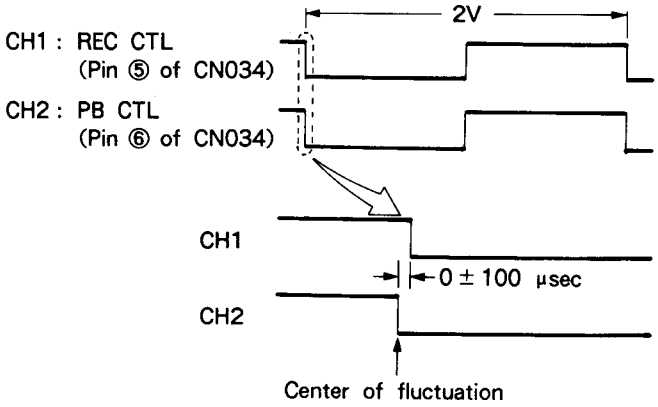


Fig. 9-11.

9-4. VIDEO BLOCK ADJUSTMENT

As a rule, follow the order below for video system adjustment. The color video signal supplied by the pattern generator is used as video input signal for adjustment of the video system in recording mode. Confirm that the sync and color burst signals meet the specifications indicated on Fig. 9-2 for adjustment setup.

- Set the SHARPNESS control to the center click position.

[Adjustment order]

9-4-1. Y signal System Adjustment

1. Playback frequency characteristic
2. De-emphasis input level adjustment
3. Expander adjustment
4. Playback Y signal level adjustment
5. Sync AGC adjustment
6. Y comb type filter AGC adjustment
7. Sync tip carrier set and deviation adjustment
8. White clip and dark clip adjustment
9. Compression adjustment
10. Y signal recording current adjustment

9-4-2. Chroma Signal System Adjustment

1. 3.58 MHz VXO adjustment
2. AFC VCO adjustment
3. 4.27 MHz carrier balance adjustment
4. Chroma peak ACC adjustment
5. Chroma signal recording current adjustment
6. Chroma comb type filter adjustment
7. Balance adjustment
8. Chroma cancel level adjustment
9. Y DET level adjustment

9-4-3. Variable Speed Playback System Adjustment

1. JOG skew AFC adjustment
2. JOG level adjustment

9-4-1. Y Signal System Adjustment

1. Playback frequency characteristic adjustment (VR-19 board)

Note : Specifications for B CH are shown within square brackets [ ].

Mode	Playback
Signal	Alignment tape βII RF sweep portion
Measurement Point	Pin ③ (PB RF) of CN010 External trigger : Pin ① (RF SWP) of CN010
Measuring Instrument	Oscilloscope
Adjusting Element	Frequency characteristics : RV002 [RV003] Gain : RV004
Specified Value	Frequency characteristics : High range peak level should be within 105 ± 5% for the 4.5 MHz level. Gain : B CH level should be equal to A CH level.

Adjusting method :

1) Set output level to maximum with the tracking control.
2) Set the trigger slope to − [+].
3) Adjust RV002 [RV003] so that the high range (around 8 to 10 MHz) peak level falls within 105 ± 5% for the 4.5 MHz level.
4) Adjust RV004 so that B CH level becomes equal to A CH level.

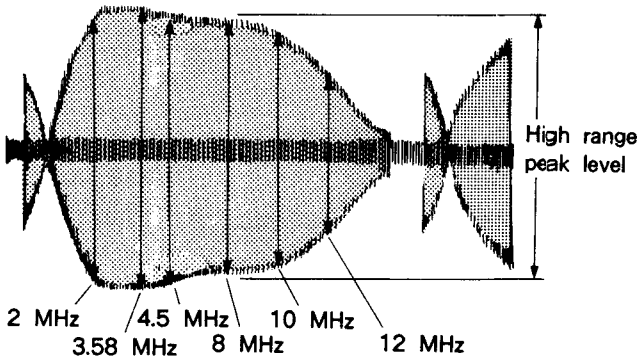


Fig. 9-12.

2. De-emphasis input level adjustment (VR-19 board)

Mode	Playback
Signal	Alignment tape βII color bar
Measurement Point	Collector of Q508
Measuring Instrument	Oscilloscope
Adjusting Element	RV500
Specified Value	0.90 ± 0.03 Vp-p

Note : Connect a 22 kΩ resistor in series to the 10 : 1 probe tip.

Adjusting method :

1) Adjust to 0.90 ± 0.03 Vp-p with RV500.

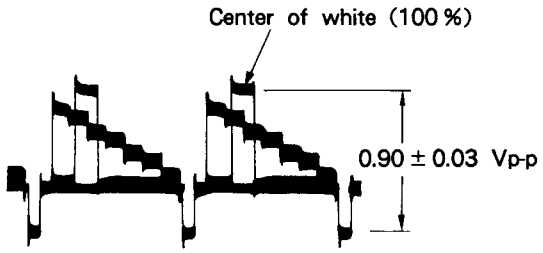


Fig. 9-13.

3. Expander adjustment (VR-19 board)

Mode	E-E
Signal	Non-signal
Measurement Point	+ : Anode of D501 − : Cathode of D502
Measuring Instrument	Digital voltmeter
Adjusting Element	RV501
Specified Value	200 ± 25 mVdc

Adjusting method :

1) Adjust to 200 ± 25 mVdc with RV501.

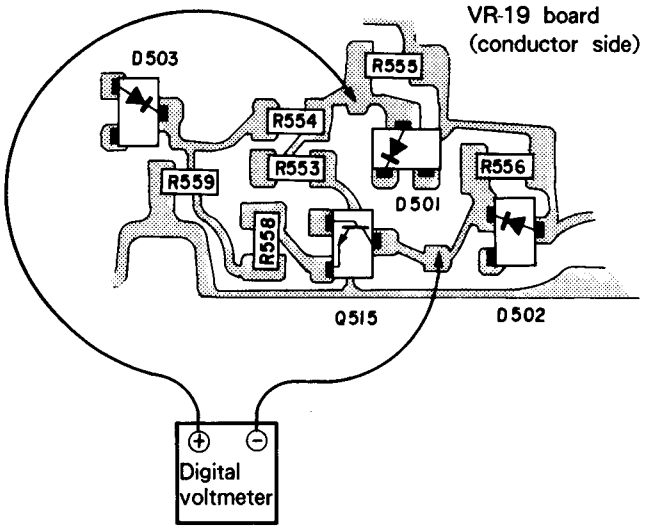


Fig. 9-14.

4. Playback Y signal level adjustment (VR-19 board)

Mode	Playback
Signal	Alignment tape βII color bar
Measurement Point	Pin ① (Y OUT) of CN008
Measuring Instrument	Oscilloscope
Adjusting Element	RV502
Specified Value	1.00 ± 0.05 Vp-p

Note : In case there is nothing connected to the S video output terminal, connect Pin ① of CN008 to Pin ② (GND) with a 75 Ω resistor.

Adjusting method :

1) Adjust to 1.00 ± 0.05 Vp-p with RV502.

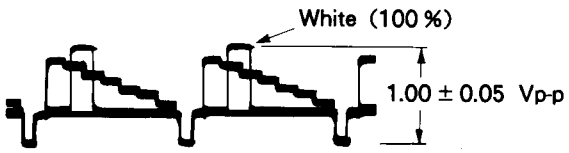


Fig. 9-15.

5. Sync AGC adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ① (Y OUT) of CN008
Measuring Instrument	Oscilloscope
Adjusting Element	RV102
Specified Value	1.00 ± 0.05 Vp-p

Note : In case there is nothing connected to the S video output terminal (J804 on the JK-35 board), connect Pin ① of CN008 to Pin ② (GND) with a 75 Ω resistor.

Adjusting method :

1) Adjust to 1.00 ± 0.05 Vp-p with RV102.

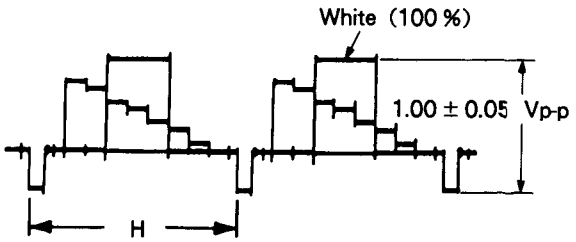


Fig. 9-16.

6. Y comb type filter AGC adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑲ of IC301 (Attach 22 k Ω resistor at the tip of 10 : 1 probe when measuring.)
Measuring Instrument	Oscilloscope
Adjusting Element	RV301

Adjusting method :

1) Adjust RV301 so as to eliminate level differences produced every 1H.

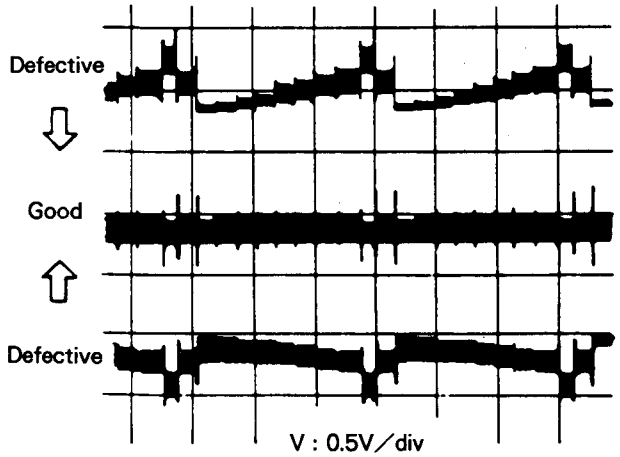


Fig. 9-17.

7. Sync tip carrier set and deviation adjustment (VR-19 board)

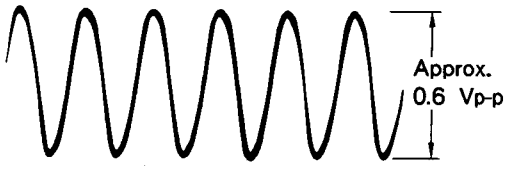
Note : Before performing this adjustment, confirm that playback Y signal level meets the specifications.

(1) Sync tip carrier set adjustment

Mode	E-E
Signal	Non-signal
Measurement Point	Pin ㊱ of IC601
Measuring Instrument	Frequency counter
Adjusting Element	RV204
Specified Value	6.70 ± 0.05 MHz

Adjusting method :

1) Adjust to 6.70 ± 0.05 MHz with RV204.



6.70 ± 0.05 MHz

Fig. 9-18.

(2) Deviation adjustment

Mode	Self-recording and playback
Signal	Color bar
Measurement Point	Pin ① (Y OUT) of CN008
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	1.00 ± 0.05 Vp-p

Note : In case there is nothing connected to the S video output terminal, connect Pin ① of CN008 to Pin ② (GND) with a 75 Ω resistor.

Adjusting method :

1) Record the color bar signal, then playback the recorded portion.
2) Check the playback Y signal level at Pin ① of CN008.
   Specification : 1.00 ± 0.05 Vp-p
3) If the specification is not fulfilled, adjust RV201 and repeat steps 1) and 2).

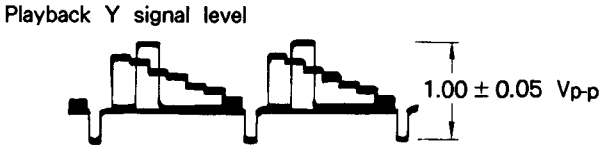


Fig. 9-19.

8. White clip and dark cLip adjustment (VR-19 board)

Mode	E-E (βIII)
Signal	Color bar
Measurement Point	Collector of Q206
Measuring Instrument	Oscilloscope
Adjusting Element	White clip : RV202 Dark clip : RV203
Specified Value	White clip : 170 % Dark clip : 45 %

Adjusting method :

1) Set the βIII mode with the REC MODE switch.
2) Adjust white clip level to 170 % of the white (100 %) level with RV202.
3) Adjust dark clip level to 45 % of the white (100 %) level with RV203.

Fig. 9-20.

9. Compression adjustment (VR-19 board)

Mode	E-E
Signal	Non-signal
Measurement Point	+ : Anode of D200 − : Cathode of D201
Measuring Instrument	Digital voltmeter
Adjusting Element	RV200
Specified Value	200 ± 25 mVdc

Adjusting method :

1) Adjust to 200 ± 25 Vdc with RV200.

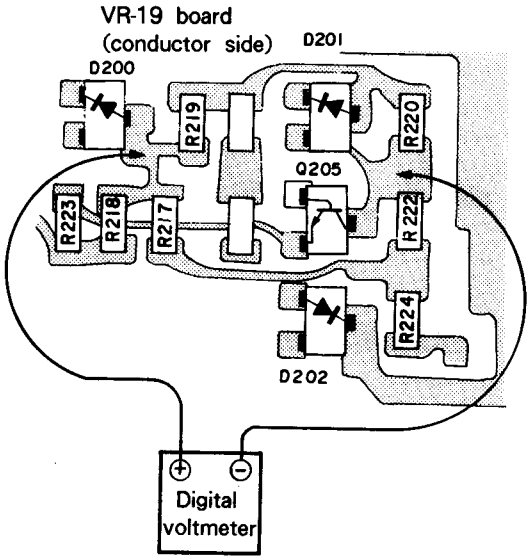


Fig. 9-21.

10. Y signal recording current adjustment (VR-19 board)

Mode	Recording (βII)
Signal	Non-signal
Measurement Point	Pin ① of CN009
Measuring Instrument	Oscilloscope
Adjusting Element	RV001
Specified Value	740 ± 30 mVp-p

Adjusting method :

1) Adjust to 740 ± 30 mVp-p with RV001.

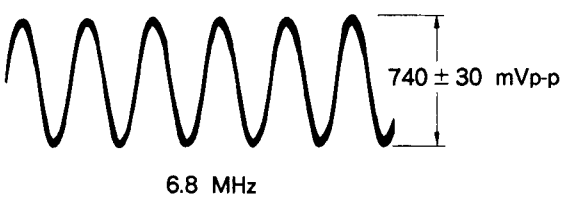


Fig. 9-22.

9-4-2. Chroma Signal System Adjustment

1. 3.58 MHz VXO adjustment (VR-19 board)

Mode	Playback
Signal	Alignment tape β II color bar
Measurement Point	Emitter of Q402 (Pin ㉛ of IC401)
Measuring Instrument	Frequency counter
Adjusting Element	RV404
Specified Value	3579545 ± 25 Hz

Note : Connect the frequency counter through a high input impedance (1 M Ω and over) and low capacity (20 pF and less) buffer amplifier (oscilloscope, etc.).

Adjusting method :

1) Adjust to 3579545 ± 25 Hz with RV404.

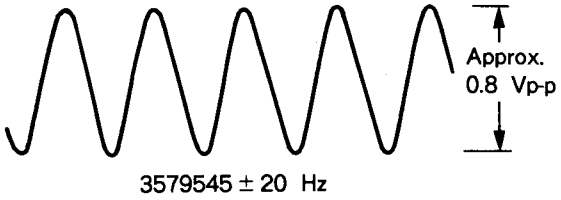


Fig. 9-23.

2. AFC VCO adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ㊹ of IC401
Measuring Instrument	Digital voltmeter
Adjusting Element	RV403
Specified Value	4.45 ± 0.02 Vdc

Adjusting method :

1) Adjust to 4.45 ± 0.02 Vdc with RV403.
2) Play back the color bar portion of the alignment tape, and confirm that proper hue is obtained on the monitor TV.
3) If playback hue is not satisfactory, repeat steps 1) and 2).

3. 4.27 MHz carrier balance adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑭ of IC401
Measuring Instrument	Oscilloscope
Adjusting Element	RV402
Specified Value	Minimize the 4.27 MHz component.

Adjusting method :

1) Adjust RV402 so as to minimize the 4.27 MHz component.

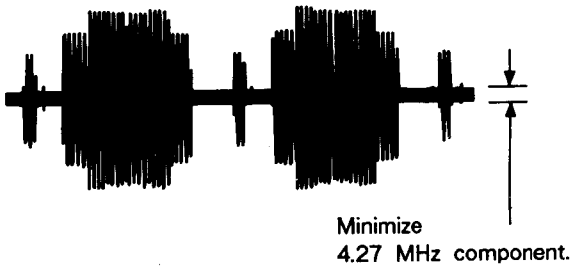


Fig. 9-24.

4. Chroma peak ACC adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ㉔ of IC601
Measuring Instrument	Oscilloscope
Adjusting Element	RV601
Specified Value	2.0 ± 0.1 Vp-p

Adjusting method :

1) Adjust to 2.0 ± 0.1 Vp-p with RV601.

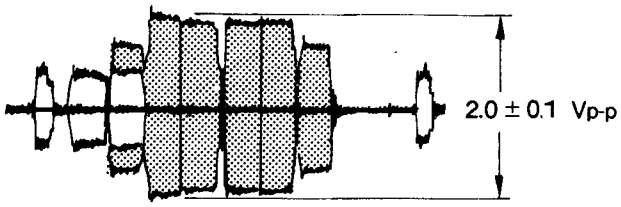


Fig. 9-25.

5. Chroma signal recording current adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ㉝ of IC601
Measuring Instrument	Oscilloscope
Adjusting Element	RV602
Specified Value	190 ± 10 mVp-p

Note : Attach a low-pass filter like the one shown below for measurement.

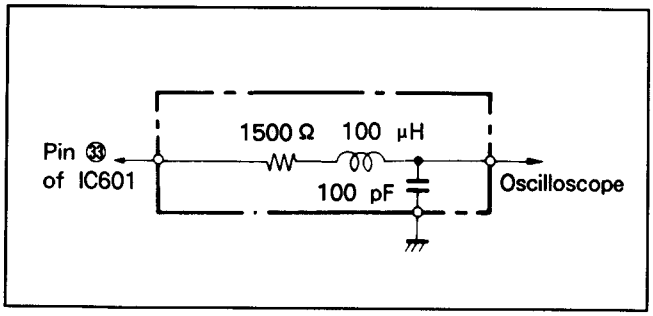


Fig. 9-26.

Adjusting method :

1) Adjust the color bar cyan level to 190 ± 10 mVp-p with RV602.

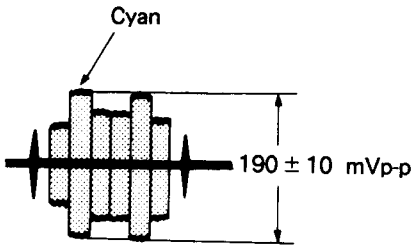


Fig. 9-27.

6. Chroma comb type filter adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Emitter of Q352
Measuring Instrument	Oscilloscope
Adjusting Element	RV101 and LV101
Specified Value	Minimize the residual chroma component.

Adjusting method :

1) Mix the Y and chroma signals by connecting Pin ③ of CN007 (CAMERA C IN) to the emitter of Q716 with the element shown below, composed of a resistor and a capacitor connected in series.

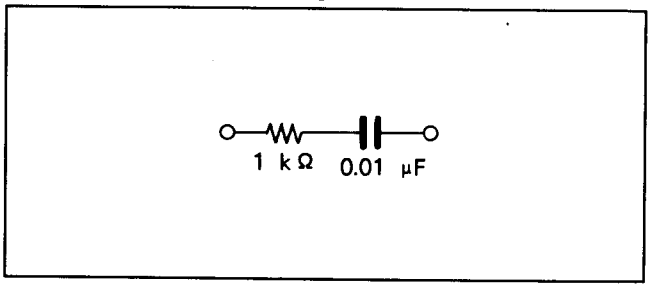


Fig. 9-28.

2) Adjust RV101 and LV101 alternately so as to minimize the chroma component.
3) Remove the resistor and the capacitor connected in step 1).

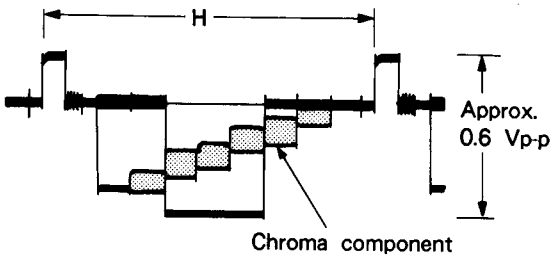


Fig. 9-29.

7. Balance adjustment (VR-19 board)

Mode	E-E
Signal	Non-signal
Measurement Point	+ : Terminal on side of Pin ⑩ of IC351 (R356) − : Terminal on side of Pin ⑧ of IC351 (R358)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV351
Specified Value	0.18 ± 0.02 Vdc

Adjusting method :

1) Adjust to 0.18 ± 0.02 Vdc with RV351.

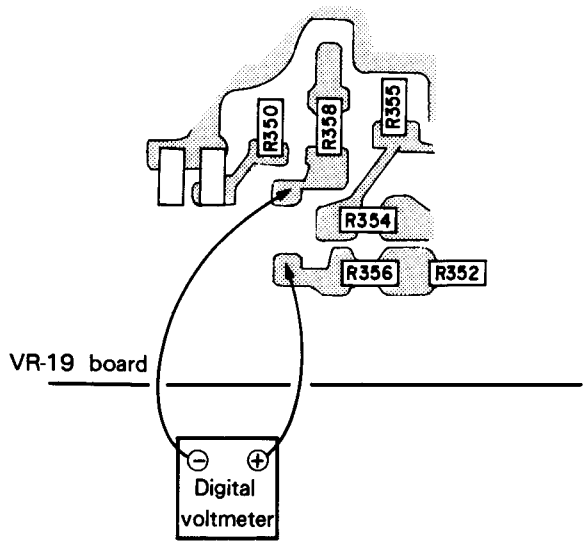


Fig. 9-30.

8. Chroma cancel level adjustment (VR-19 board)

Mode	Playback
Signal	Alignment tape Color bar portion
Measurement Point	Pin ⑤(VIDEO OUT)of CN008
Measuring Instrument	Oscilloscope
Adjusting Element	RV353
Specified Value	Minimize the amplitude of non-correlated section.

Adjusting method :

1) Adjust RV353 so as to minimize chroma amplitude of the chroma signal non-correlated section.

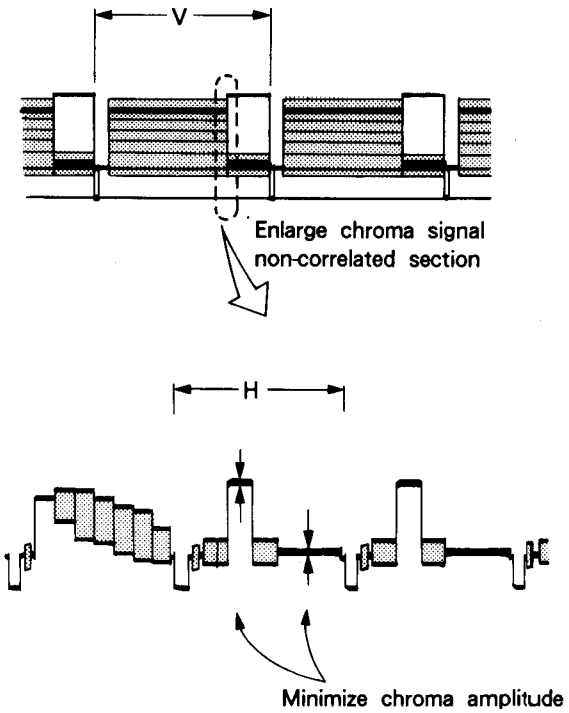


Fig. 9-31.

9. Y DET level adjustment (VR-19 board)

Mode	Playback
Signal	Alignment tape Color bar portion
Measurement Point	CH1 : Pin ① (Y OUT) of CN008 CH2 : Emitter of Q356
Measuring Instrument	Oscilloscope
Adjusting Element	RV352
Specified Value	400 ± 50 mVp-p

Adjusting method :

1) Adjust the Y signal non-correlated section detection level to 400 ± 50 mVp-p with RV352.

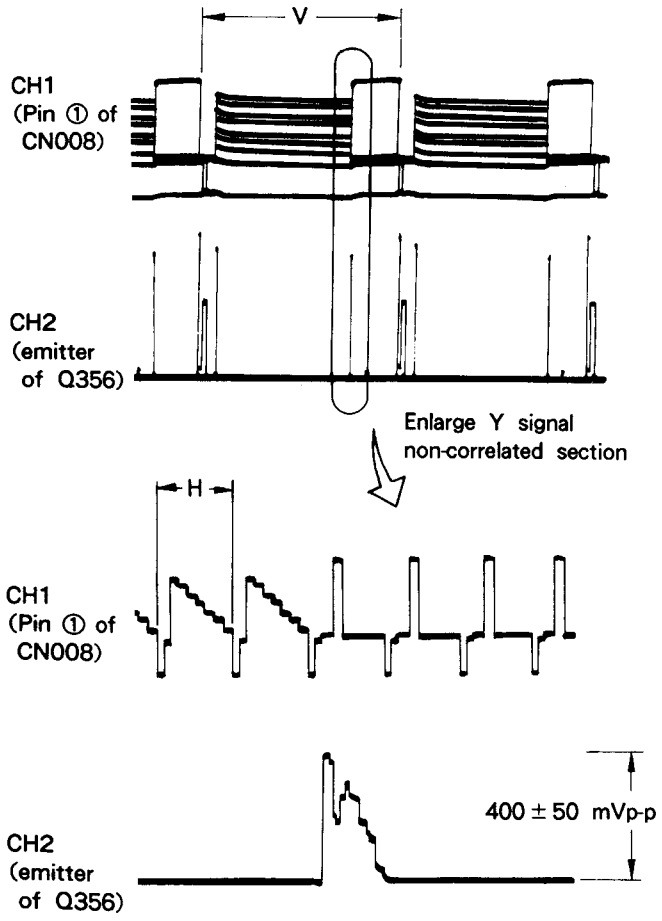


Fig. 9-32.

9-4-3. Variable-speed Playback System Adjustment

1. JOG skew AFC adjustment (VR-19 board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ③ of IC801
Measuring Instrument	Frequency counter
Adjusting Element	RV802
Specified Value	31.4 ± 0.1 kHz

Connection :

1) Connect Pin ⑥ of IC801 to Pin ⑭ (5V) of IC801 with a jumper wire.

Adjusting method :

1) Adjust to 31.4 ± 0.1 kHz with RV802.

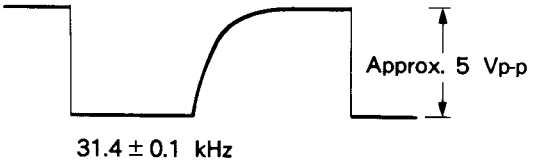


Fig. 9-33.

2. JOG level adjustment (VR-19 board)

Mode	Playback and playback pause
Signal	Alignment tape βII color bar portion
Measurement Point	Pin ① (Y OUT) of CN008
Measuring Instrument	Oscilloscope
Adjusting Element	RV801
Specified Value	(Y signal level during playback pause) = (Y signal level during playback) ± 0.025 Vp-p

Note : In case there is nothing connected to the S video output terminal, connect Pin ① of CN008 to Pin ② (GND) with a 75 Ω resistor.

Adjusting method :

1) In the playback mode, confirm the Y signal level (1.00 ± 0.05 Vp-p).
2) Set the playback pause mode and adjust RV801 so as to make Y signal level equal to that in playback mode.

Fig. 9-34.

9-5. AUDIO SYSTEM ADJUSTMENT

• Adjust both the left and right channels.

[Connection]

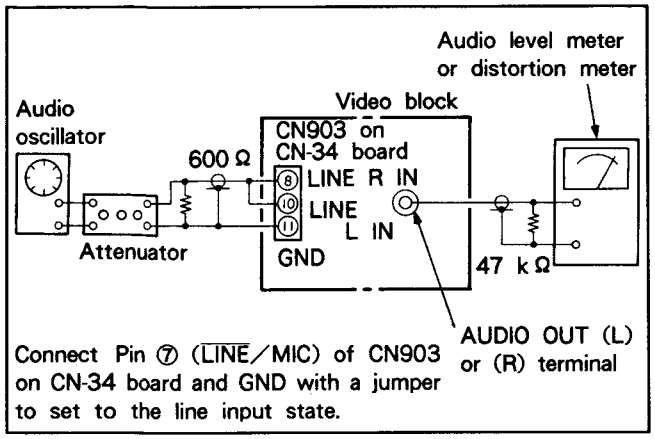


Fig. 9-35.

9-5-1. Beta HiFi Audio System Adjustment

Unless otherwise specified, set controls to the following positions.

- AUDIO MONITOR (HIFI/MIX/NORMAL) switch (S001 on the AD-14 board)·····HIFI
- AUDIO MONITOR (L/R) switch (S002 on the AD-14 board)·····STEREO
- REC LEVEL control (RV301, 302 on the AD-14 board)·····[7]

[Adjusting order]

1. Reference (150 kHz) check
2. Carrier frequency check
3. IS pulse check
4. SNR reference check
5. Playback f_0 adjustment
6. Playback level adjustment
7. Recording gain adjustment
8. Playback channel balance adjustment
9. Level meter adjustment
10. E-E level check
11. Playback level check
12. Overall level characteristic, distortion, S/N check
13. Overall frequency characteristic check

1. Reference (150 kHz) check (AD-14 board)

Mode	E-E
Measurement Point	Pin ⑬ of IC004
Measuring	Frequency counter
Specified Value	149473 ± 10 Hz

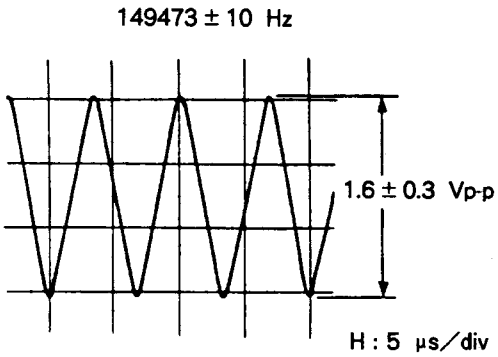


Fig. 9-36.

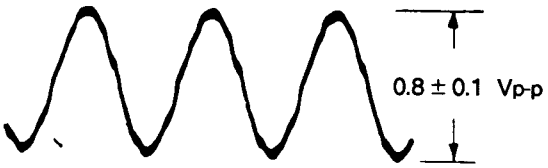
2. Carrier frequency check (AD-14 board)

Mode	Recording
Measuring Instrument	Frequency counter
1.83 MHz check	
Measurement Point	Terminal on side of Pin ③ of IC003 (C254)
Specified Value	1.83 ± 0.1 MHz
1.38 MHz check	
Measurement Point	Terminal on side of Pin ㉝ of IC003 (C054)
Specified Value	1.38 ± 0.1 MHz
1.53 MHz check	
Measurement Point	Terminal on side of Pin ㉚ of IC003 (R055)
Specified Value	1.53 ± 0.1 MHz
1.68 MHz check	
Measurement Point	Terminal on side of Pin ⑤ of IC003 (R255)
Specified Value	1.68 ± 0.1 MHz

Note : Set the REC LEVEL control to minimum.

Checking method :

1) Connect the frequency counter to the specified measuring points.
2) Confirm that frequency readings meet the specifications.



- Terminal on side of Pin ③ of IC003 (C254) : 1.83 ± 0.1 MHz
- Terminal on side of Pin ㉝ of IC003 (C054) : 1.38 ± 0.1 MHz
- Terminal on side of Pin ㉚ of IC003 (R055) : 1.53 ± 0.1 MHz
- Terminal on side of Pin ⑤ of IC003 (R255) : 1.68 ± 0.1 MHz

Fig. 9-37.

3. IS pulse check (AD-14 board)

Mode	Recording or playback
Signal	Arbitrary
Measurement Point	CH1 : Pin ① (RF SW PULSE) of CN002 CH2 : Collector of Q403
Measuring Instrument	Oscilloscope (DC range)

Checking method :

1) Confirm that the compensating pulse amplitude (tw1 and tw2) for 4 Vdc is approx. 210 μsec.
2) Connect the oscilloscope channel 2 probe to the collector of Q402 (positive terminal of C421) and confirm that the compensation pulse characteristic is the inverse of that of the pulse from the collector of Q403.

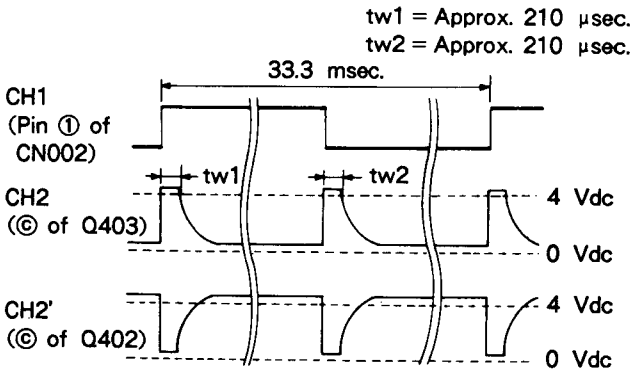


Fig. 9-38.

4. SNR reference check (AD-14 board)

Note : Adjusting elements for the right channels are shown between square brackets [ ].

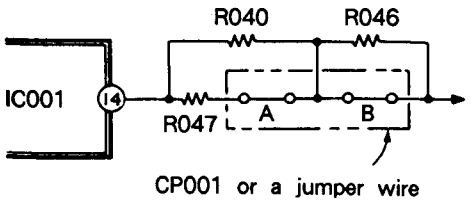
Mode	E-E
Signal	400 Hz
Measurement Point	Terminal on side of Pin ㊽ of IC001 (R064) [Terminal on side of Pin ㊲ of IC001 (R264)]
Measuring Element	Audio level meter
Specified Value	− 20.0 ± 0.25 dBs

Checking method :

1) Adjust the input signal level so that the 400 Hz signal level at Pin ② of FL101 [Pin ⑰ of FL101] becomes − 26.5 ± 0.1 dBs.
2) Connect the audio level meter to the terminal on the side of Pin ㊽ of IC001 (R064, 270 Ω) [terminal on the side of Pin ㊲ of IC001 (R264, 270 Ω)].
3) Confirm that 400 Hz signal level on both the left and right channels is − 20.0 ± 0.25 dBs.
4) If the above specification is not fulfilled, perform the following adjustment.

Adjusting method :

1) Detach CP001.
2) Short-circuit points A (R047 side) and B (R046 side) in the figure below.
3) Measure the 400 Hz signal level and open the A or B points according to the level shown in Fig. 9-39.



400 Hz signal level (dBs)	A	B
− 19.9 to − 20.1	Short	Short
− 19.7 to − 19.9	Short	Open
− 19.5 to − 19.7	Open	Short
− 19.3 to − 19.5	Open	Open

Fig. 9-39.

5. Playback fo adjustment (AD-14 board)

Note : Adjusting elements for the right channels are shown between square brackets [ ].

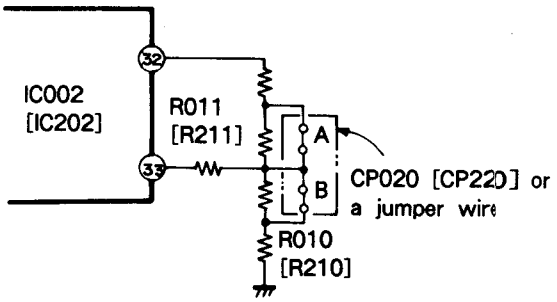
Mode	Playback
Signal	BETA HI-FI recorded tape by non-audio signal
Measurement Point	Terminal on side of Pin ⑳ of IC002 (C009) [Terminal on side of Pin ⑳ of IC202 (C209)]
Measuring Element	Digital voltmeter
Specified Value	DC output voltage : 2.00 ± 0.35 Vdc

Checking method :

1) Connect the digital voltmeter to the measurement points.
2) Confirm that the DC output voltage is 2.00 ± 0.35 Vdc.
3) If the above specification is not fulfilled, perform the following adjustment.

Adjusting method :

1) Detach CP020 [CP220].
2) Short-circuit points A and B in the figure below.
3) Perform playback fo check, and open the A or B points according to the DC output voltage shown in Fig. 9-40.



DC output voltage (Vdc)	A	B
1.1 to 1.7	Open	Short
1.7 to 2.3	Short	Short
2.3 to 2.9	Short	Open

Fig. 9-40.

6. Playback level adjustment (AD-14 board)

Note : Adjusting elements for the right channels are shown between square brackets [ ].

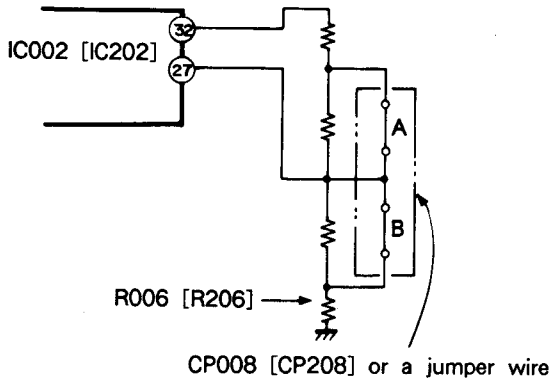
Mode	Playback
Signal	Alignment tape Color bar or monoscope portion
Measurement Point	Pin ② of FL101 [Pin ⑰ of FL101]
Measuring Element	Audio level meter
Specified Value	− 19.7 ± 0.3 dBs [− 19.7 ± 0.3 dBs]

Checking method :

1) Connect an audio level meter to Pin ② of FL101 [Pin ⑰ of FL101].
2) Confirm that the playback level is − 19.7 ± 0.3 dBs [− 19.7 ± 0.3 dBs].
3) If the above specification is not fulfilled, perform the following adjustment.

Adjusting method :

1) Detach CP008 [CP208].
2) Short-circuit points A and B in the figure below.
3) Measure the signal level, and open the A or B points according to the level shown in Fig. 9-41.



Playback level (dBs)	A	B
More than − 19.0	Open	Short
− 19.0 to − 19.45	Open	Open
− 19.45 to − 20.0	Short	Short
Less than − 20.0	Short	Open

Fig. 9-41.

7. Recording gain adjustment (AD-14 board)

Note : 1) Before this adjustment, confirm that playback level meets the specifications.
2) Adjusting elements for the right channels are shown between square brackets [ ].

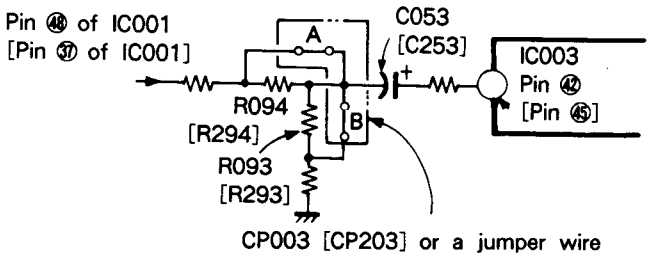
Mode	Recording and playback
Signal	400 Hz
Measurement Point	Pin ② of FL101 [Pin ⑰ of FL101]
Measuring Element	Audio level meter
Specified Value	− 19.7 ± 0.6 dBs [− 19.7 ± 0.6 dBs]

Checking method :

1) In the EE mode, adjust the input level so that signal level at Pin ② of FL101 [Pin ⑰ of FL101] becomes − 26.5 ± 0.1 dBs.
2) Record.
3) Play back the recorded portion.
4) Confirm that playback level is within the specified range.
5) If the above specification is not fulfilled, perform the following adjustment.

Adjusting method :

1) Detach CP003 [CP203].
2) Short-circuit points A (R094 [R294]) and B (R093 [R293]) in the figure below.
3) Perform a recording gain check, and open the A or B points according to the playback level as shown in Fig. 9-42.



Playback level (dBs)	A	B
More than − 19.1	Open	Short
− 19.1 to − 21.3	Short	Short
Less than − 21.3	Short	Open

Fig. 9-42.

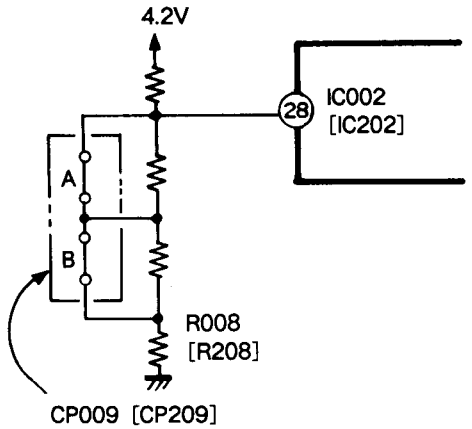
8. Playback channel balance adjustment (AD-14 board)

Note : Adjusting elements for the right channels are shown between square brackets [ ].

Mode	Recording and playback
Signal	10 kHz and −10 dBs signals
Measurement Point	CH1 : AUDIO OUT (L) [AUDIO OUT (R)] CH2 : Pin ① (RF SWP) of CN002
Measuring Element	Oscilloscope

Adjusting method :

1) Detach CP009 [CP209].
2) Set the REC LEVEL control to the position [7] and record a 10 kHz signal for at least one minute.
3) Play back the recorded portion.
4) Short-circuit points A and B in the figure below, then open one or both of them so that level difference between both channels is minimum (see Fig. 9-43).



A	B	B channel playback level
Open	Open	Max. ↕ Min.
Open	Short	
Short	Open	
Short	Short	

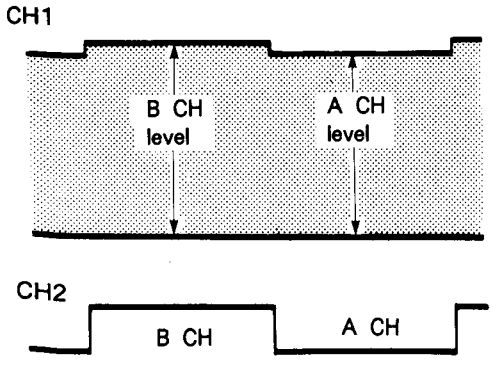


Fig. 9-43.

9. Level meter adjustment (AD-14 board)

Note : Adjusting elements for the right channels are shown between square brackets [ ].

Mode	E-E
Signal	400 Hz, − 10 dBs
Measurement Point	AUDIO OUT (L) [AUDIO OUT (R)] terminal
Measuring Instrument	Audio level meter
Adjusting Element	RV581 [RV582]
Specified Value	It should indicate − 10 dB.

Adjusting method :

1) Adjust the REC LEVEL control so that the audio level meter connected to the AUDIO OUT (L) [AUDIO OUT (R)] terminal reads − 10 ± 0.5 dBs.
2) Adjust RV581 [RV582] so that the VCR level meter (L) [level meter (R)] reads − 10 dB.

10. E-E level check

Note : Check for both the right and left channels.

Mode	E-E
Signal	400 Hz, − 10 dBs
Measurement Point	AUDIO OUT (L) and (R) terminals
Measuring	Audio level meter
Specified Value	REC LEVEL knob MAX position : 0 ± 2 dBs REC LEVEL knob [7] position : − 10 ± 3 dBs

Checking method :

1) Set the REC LEVEL control to maximum.
2) Confirm that audio output level is 0 ± 2 dBs.
3) Set the REC LEVEL control to the position [7].
4) Confirm that audio output level is − 10 ± 3 dBs.

11. Playback level check

Note : Check for both the right and left channels.

Mode	Playback
Signal	Alignment tape BETA HI-FI portion
Measurement Point	AUDIO OUT (L) and (R) terminals
Measuring Instrument	Audio level meter
Specified Value	− 10 ± 2 dBs

Checking method :

1) Confirm that playback level is − 10 ± 2 dBs.

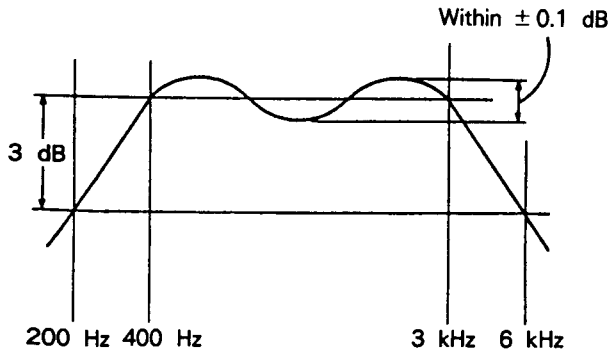
12. Overall level characteristic, distortion, S/N check

Note : Check for both the right and left channels.

Mode	Recording and playback
Signal	400 Hz, − 10 dBs
Measurement Point	AUDIO OUT (L) and (R) terminals
Measuring Instrument	Audio level meter and distortion meter
Specified Value	Playback level : − 10 ± 2 dBs Distortion ratio : 0.3 %

Checking method :

1) In the E-E mode, adjust the REC LEVEL control so that output level from the AUDIO OUT (L) and AUDIO OUT (R) terminals becomes − 10 ± 0.5 dB.
2) Record a 400 Hz signal.
3) Short-circuit the audio input terminals.
4) Record (non-signal recording).
5) Play back the 400 Hz signal recorded portion.
6) Confirm that the playback level is − 10 ± 2 dBs, and that level difference between the right and left channels is not greater than 2 dB.
7) Confirm that the distortion factor is not greater than 0.3 % (when using the BPF in Fig. 9-44 or approx. 0.7 % if a BPF is not used).
8) Play back the non-signal recorded portion, and confirm that the difference between the 400 Hz playback level and the non-signal playback level is greater than 75 dB*.
   (* When using an A-curve filter)



12 dB/Oct when fCL is less than 200 Hz
12 dB/Oct when fCL is more than 6 kHz

Fig. 9-44.

13. Overall frequency characteristic check

Note : Check for both the right and left channels.

Mode	Recording and playback
Signal	Input the following audio signals in sequence. 1. 400 Hz, − 20 dBs 2. 20 Hz, − 20 dBs 3. 10 kHz, − 20 dBs 4. 20 kHz, − 20 dBs
Measurement Point	AUDIO OUT (L) and (R) terminals
Measuring Instrument	Audio level meter
Specified Value	The playback level of each signal, referred to the 400 Hz playback level. 20 Hz : $0\ ^{+1}_{-3}$ dB 10 kHz : $0\ ^{+1}_{-2}$ dB 20 kHz : $0\ ^{+1}_{-5}$ dB

Checking method :

1) Set the REC LEVEL control to the position [7].
2) Record the four audio signals above in sequence for 5 seconds each.
3) Play back the recorded portion.
4) Confirm that the playback level of each signal, referred to the 400 Hz playback level, meets the following specifications :
   20 Hz : $0\ ^{+1}_{-3}$ dB
   10 kHz : $0\ ^{+1}_{-2}$ dB
   20 kHz : $0\ ^{+1}_{-5}$ dB

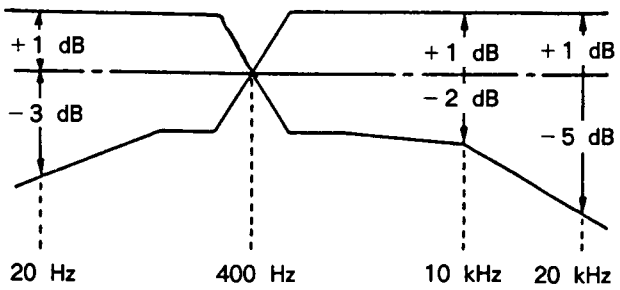


Fig. 9-45.

9-5-2. Normal Audio System Adjustment

- Unless otherwise specified, perform adjustments in the βII mode.
- Set the AUDIO MONITOR (HIFI/MIX/NORMAL) switch to the NORMAL position.

[**Adjustment order**]

1. ACE head adjustment (refer to mechanism adjustments)
2. Playback frequency characteristic check
3. Playback output level adjustment
4. E-E output level check
5. Bias oscillation check
6. Recording bias adjustment
7. Audio insert bias adjustment
8. Overall level characteristic, distortion check
9. Overall S/N check

1. ACE head adjustment

Refer to "Mechanism Adjustments".

2. Playback frequency characteristic check

Mode	Playback
Signal	Alignment tape βII 333 Hz (color bar) and 7 kHz (monoscope) portions
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Instrument	Audio level meter
Specified Value	7 kHz signal should be within 0 ± 3 dB for 333 Hz signal.

Checking method :

1) Play back the 333 Hz and 7 kHz portions, and confirm that level of the 7 kHz signal is within 0 ± 3 dB for the 333 Hz signal level.

3. Playback output level adjustment (SA-26 board)

Mode	Playback
Signal	Alignment tape βII 333 Hz (color bar) portion
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Instrument	Audio level meter
Adjusting Element	RV901
Specified Value	− 30 ± 1 dBs

Adjusting method :

1) Play back the 333 Hz portion.
2) Adjust audio output level to − 30 ± 1 dBs with RV901.

4. E-E output level check

Mode	E-E
Signal	L, R : 333 Hz, − 10 dBs
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Element	Audio level meter
Specified Value	− 10 ± 2 dBs

Checking method :

1) Input a 333 Hz, − 10 dBs signal simultaneously to both right and left channels.
2) Confirm that audio output level is − 10 ± 2 dBs.

5. Bias oscillation check (SA-26 board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ② of CN015
Measuring Element	Frequency counter
Specified Value	65 ± 5 kHz

Note : Connect the frequency counter through a low capacity (10 pF and less) and high input impedance (about 10 MΩ) buffer (oscilloscope, etc.).

Checking method :

1) Confirm that oscillation frequency is 65 ± 5 kHz.

6. Recording bias adjustment (SA-26 board)

Mode	Recording and playback(βII)
Signal	333 Hz, − 30 dBs 7 kHz, − 30 dBs
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Instrument	Audio level meter
Adjusting Element	RV951
Specified Value	-0.5^{+2}_{-3} dB

Note : Be sure to carry out playback frequency characteristic check and playback output level adjustment first.

Adjusting method :

1) Input a 333 Hz, − 30 dBs signal simultaneously to both right and left channels.
2) Connect an audio level meter to the AUDIO OUT terminal.
3) Adjust the attenuator so that the audio level meter reads − 30 dBs.
4) Record in the βII mode.
5) Record with a 7 kHz signal as input signal.
6) Play back the recorded portion and measure the 333 Hz and 7 kHz signals output level.
7) Confirm that playback output level of the 7 kHz signal is within -0.5^{+2}_{-3} dB for the 333 Hz signal playback output level.
   If this specification is not fulfilled, adjust RV951 and repeat steps 1) to 7).

7. Audio insert bias adjustment (SA-26 board)

Mode	Audio insert
Signal	Arbitrary
Measurement Point	Pin ② of CN015
Measuring Instrument	Frequency counter
Adjusting Element	LV951
Specified Value	65 ± 3 kHz

Note : Connect the frequency counter through a low capacity (10 pF and less) and high input impedance (about 10 MΩ) buffer (oscilloscope, etc.).

Adjusting method :

1) Adjust to 65 ± 3 kHz with LV951.

8. Overall level characteristic, distortion check

Mode	Recording and playback(βII)
Signal	333 Hz, − 10 dBs
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Element	Audio level meter and distortion meter
Specified Value	Playback level : − 10 ± 2 dBs Distortion ratio:Less than 5%

Checking method :

1) Input a 333 Hz, − 10 dBs signal simultaneously to both right and left channels.
2) Record.
3) Play back the recorded portion.
4) Confirm that the playback level is − 10 ± 2 dBs.
5) Confirm that the distortion factor is not greater than 5 %.

9. Overall S/N check

Mode	Recording and playback(βIII)
Signal	333 Hz and − 10 dBs signal, and non-signal
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Element	Audio level meter
Specified Value	More than 33 dB

Checking method :

1) Input a 333 Hz, signal simultaneously to both right and left channels, and adjust the attenuator so that the AUDIO OUT terminal output level becomes − 10 dBs.
2) Record.
3) Keeping the unit in recording mode, set to non-signal input (short-circuit both right and left inputs).
4) Play back the recorded portion, and confirm that level difference between the 333 Hz portion and the non-signal portion (right after the 333 Hz signal) is at least 33 dB.

6. Recording bias adjustment (SA-26 board)

Mode	Recording and playback(βII)
Signal	333 Hz, − 30 dBs 7 kHz, − 30 dBs
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Instrument	Audio level meter
Adjusting Element	RV951
Specified Value	-0.5^{+2}_{-3} dB

Note : Be sure to carry out playback frequency characteristic check and playback output level adjustment first.

Adjusting method :

1) Input a 333 Hz, − 30 dBs signal simultaneously to both right and left channels.
2) Connect an audio level meter to the AUDIO OUT terminal.
3) Adjust the attenuator so that the audio level meter reads − 30 dBs.
4) Record in the βII mode.
5) Record with a 7 kHz signal as input signal.
6) Play back the recorded portion and measure the 333 Hz and 7 kHz signals output level.
7) Confirm that playback output level of the 7 kHz signal is within -0.5^{+2}_{-3} dB for the 333 Hz signal playback output level.
   If this specification is not fulfilled, adjust RV951 and repeat steps 1) to 7).

7. Audio insert bias adjustment (SA-26 board)

Mode	Audio insert
Signal	Arbitrary
Measurement Point	Pin ② of CN015
Measuring Instrument	Frequency counter
Adjusting Element	LV951
Specified Value	65 ± 3 kHz

Note : Connect the frequency counter through a low capacity (10 pF and less) and high input impedance (about 10 MΩ) buffer (oscilloscope, etc.).

Adjusting method :

1) Adjust to 65 ± 3 kHz with LV951.

8. Overall level characteristic, distortion check

Mode	Recording and playback(βII)
Signal	333 Hz, − 10 dBs
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Element	Audio level meter and distortion meter
Specified Value	Playback level : − 10 ± 2 dBs Distortion ratio : Less than 5%

Checking method :

1) Input a 333 Hz, − 10 dBs signal simultaneously to both right and left channels.
2) Record.
3) Play back the recorded portion.
4) Confirm that the playback level is − 10 ± 2 dBs.
5) Confirm that the distortion factor is not greater than 5%.

9. Overall S/N check

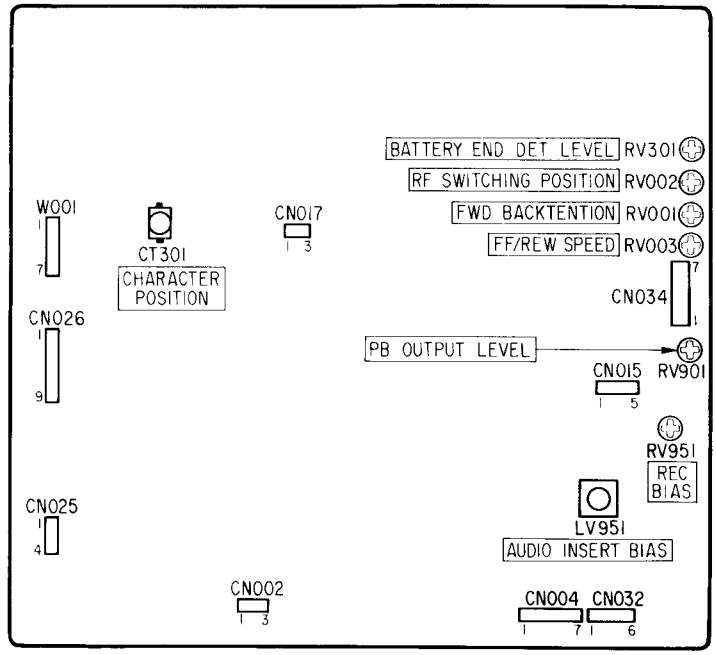
Mode	Recording and playback(βIII)
Signal	333 Hz and − 10 dBs signal, and non-signal
Measurement Point	AUDIO OUT (L) or (R) terminal
Measuring Element	Audio level meter
Specified Value	More than 33 dB

Checking method :

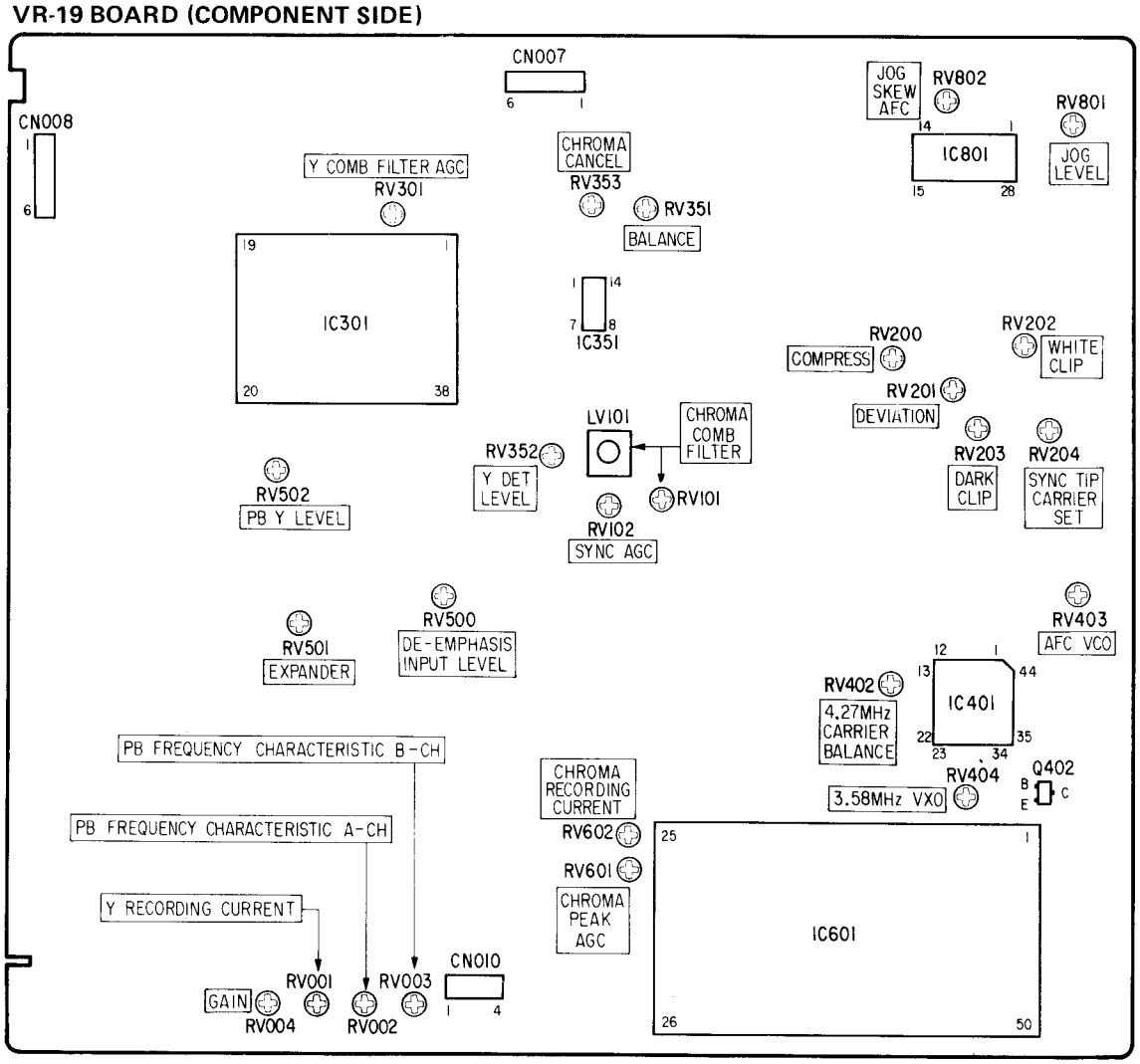
1) Input a 333 Hz, signal simultaneously to both right and left channels, and adjust the attenuator so that the AUDIO OUT terminal output level becomes − 10 dBs.
2) Record.
3) Keeping the unit in recording mode, set to non-signal input (short-circuit both right and left inputs).
4) Play back the recorded portion, and confirm that level difference between the 333 Hz portion and the non-signal portion (right after the 333 Hz signal) is at least 33 dB.

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

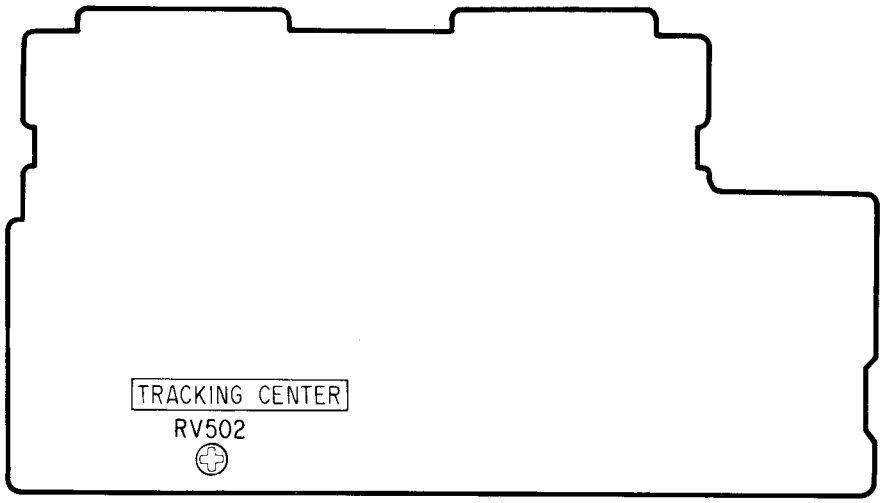
SA-26 BOARD (COMPONENT SIDE)



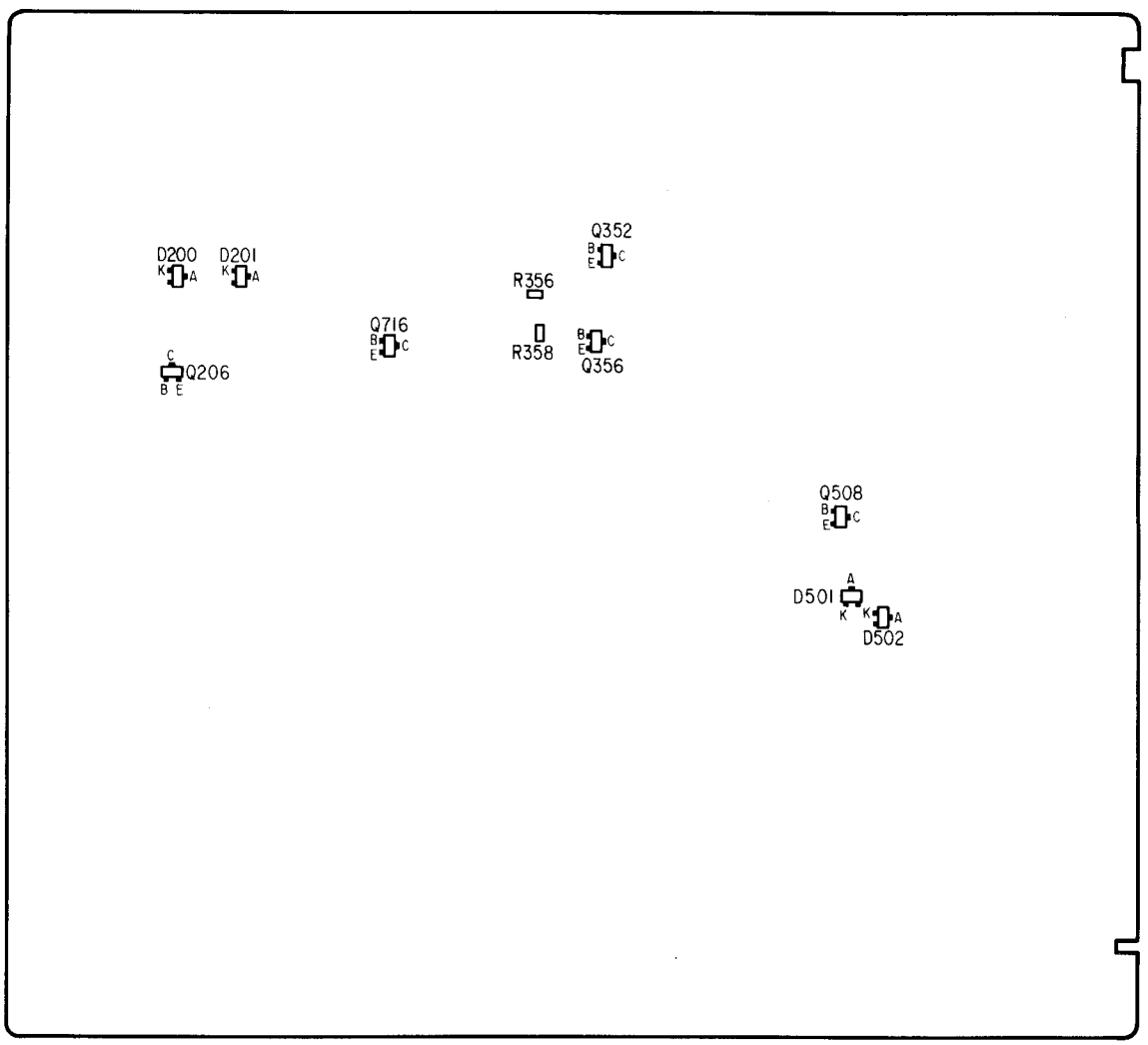
VR-19 BOARD (COMPONENT SIDE)



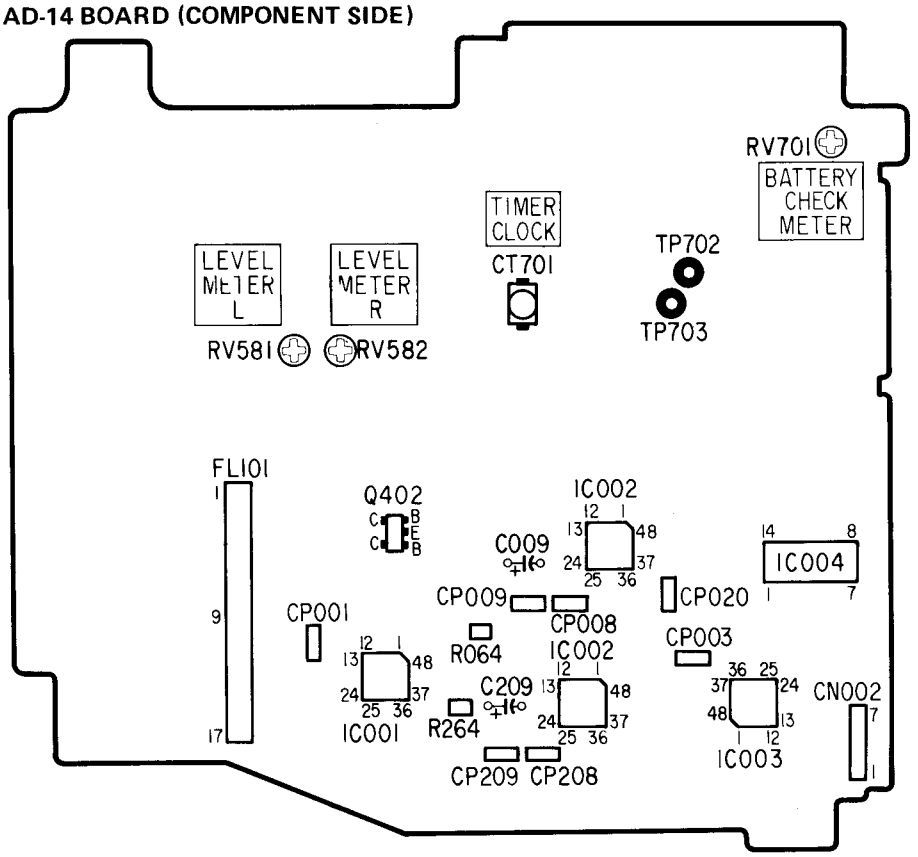
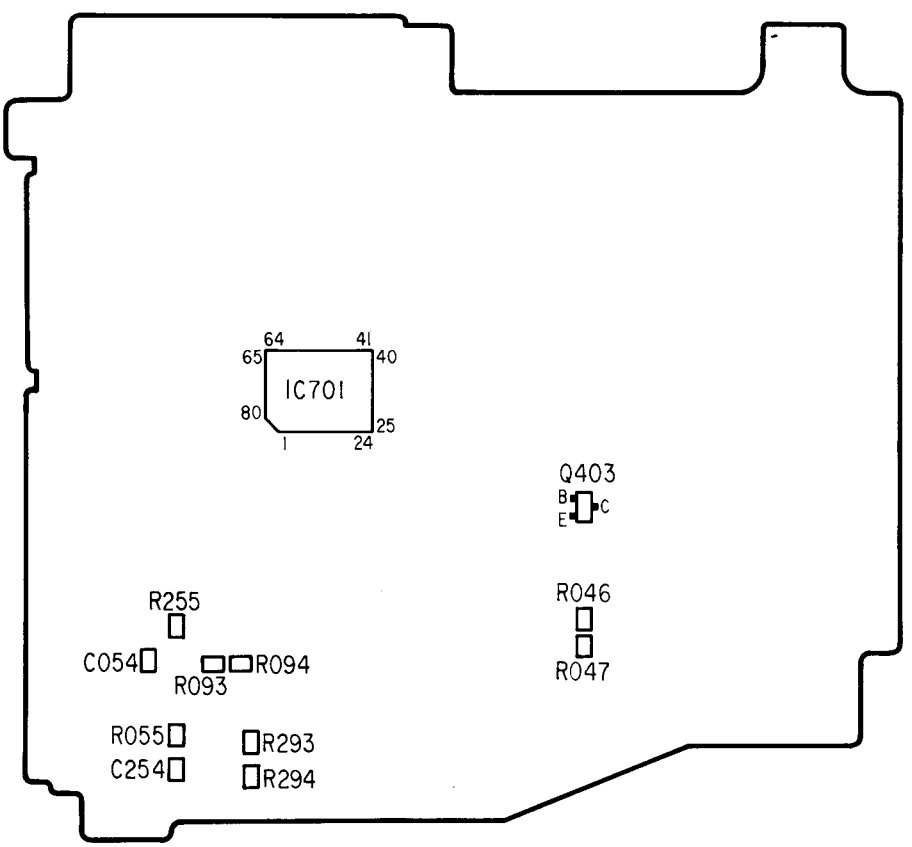
FU-64 BOARD (COMPONENT SIDE)



VR-19 BOARD (CONDUCTOR SIDE)



AD-14 BOARD (COMPONENT SIDE)



AD-14 BOARD (CONDUCTOR SIDE)